THE

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BRANCH I.

ORIGINAL COMMUNICATIONS.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

A Law, for regulating the Trade in Clovers and other small Seeds, recommended.

SIR,

THE Legislature, at different times, have passed various laws for regulating the flax-seed trade, which, *inter alia*, direct, that such certificates shall be delivered by the seller of that seed to the purchaser, as may instruct the place of its growth, and the season in which it was produced, so as the latter might be guaranteed from loss or damage, in case the seed should prove unsound, or of a different quality than described in the certificate delivered. These regulations have proved of great utility, tending much to protect the grower of flax, and, of course, to promote the prosperity of the flax trade. I have often thought that it would be of public advantage, were similar regulations established with regard to clover and other small seeds, such as Rye grass, Sainfoin, Ruta baga, and Turnip; because it is well known that numerous abuses are practised by the dealers in these articles, and that heavy losses have repeatedly been sustained by purchasers in consequence of unsound, or, what is worse, of bastard or degenerated seed being furnished, instead of what was healthy and pure. For these reasons, and, in particular, because the most acute judge is unable to distinguish the difference betwixt some

of the varieties of small seeds, it would, in my humble opinion, be highly beneficial to cultivators, were the following account of a cause, lately determined by the Second Division of the Court of Session, inserted in your earliest Number; as it shows, in the clearest manner, the propriety of making the legislative regulations which I have recommended. I am, Sir, yours, &c.

A FRIEND TO IMPROVEMENTS.

Account of a Cause respecting Ruta Baga Seed, lately decided in the Second Division of the Court of Session.

IN the month of April 1804, Messrs Dickson & Co., seedsmen in Edinburgh, purchased 2 cwt. of Swedish turnip seed from James Kincaid, then farmer at Inches near Falkirk, which, upon trial, they alleged turned out not to be genuine; and, having sold part of it to different persons, as real Swedish turnip seed, their character, in consequence, suffered material injury. With the view of obtaining redress for this, they instituted an action of damages before the Court of Session, against Mr Kincaid, on the 13th December 1804, about eight months after the sale of the seed. In the libel it was stated, that in April last (1804), the pursuers concluded a bargain with James Kincaid, farmer at Inches near Falkirk, for two hundred weight of turnip seed, which he affirmed was true Swedish turnip, raised by himself, and for the qualities and growth of which he would be answerable. That the pursuers, relying on these assurances, paid a full price for the seed above mentioned; sold the same in retail to several of their customers; but, on trial, it was discovered not to be Swedish turnip, but rape seed, or some other kind of seed totally different from that which the said James Kincaid had professed to sell to the pursuers, as above mentioned. That not only have the pursuers had various complaints from some of their most respectable customers, and actions of damages threatened to be brought against them on account of failures in the crop of turnip from the above cause, which is solely imputable to the said James Kincaid, but have also sustained a grievous injury in their character and reputation as upright and honourable dealers, which is infinitely more important to them than any pecuniary reparation that can be made; but for which, nevertheless, according to every principle of justice, an adequate reparation is due. The libel concluded for 'payment of the sum of 1000*l.* Sterling, or such other sum, less or more, as our *said Lords* shall be pleased to modify in name

name of damages, on the above mentioned account; with interest thereof from the date of citation to follow hereon, till payment; and also for expenses of process.'

On the 13th December 1805, eleven months after the process against Mr Kincaid, an action of damages was raised against Messrs Dicksons, at the instance of Mr Lewis Cauvin, for the loss of a crop of Swedish turnips from a field at Duddingston, which he had sown with seed purchased from these gentlemen. Mr Kincaid was not made a party to this action; and, after a good deal of litigation before Lord Glenlee, it appears that his Lordship decerned against Messrs Dicksons for 12*l.* 13s. 1d. of damages, and 39*l.* 10s. of expenses; making, in all, 52*l.* 3s. 1d. Sterling.

In the mean time, the original action of damages at Messrs Dicksons' instance against Mr Kincaid, proceeded before Lord Justice-Clerk, who remitted the cause to Dr Coventry, Professor of Agriculture, and Dr Rutherford, Professor of Botany in the University of Edinburgh; and these gentlemen reported, that upon 20th March 1805, they inspected a field of plants belonging to Benjamin Bell Esq. at Newington, and also another field of the same belonging to Mr Lewis Cauvin at Restalrig, by direction of the parties; and, after examining particularly the plants in these two fields, are of opinion, that they are not of the species called rap, but are a variety of the Swedish turnip, altered, however, a good deal from the ordinary character of this last species.

They further reported to the Lord Ordinary, that the Swedish turnip, as well as some other species belonging to the same natural family or tribe of plants, is peculiarly liable to vary in its habit and general appearance, owing, most probably, as numerous observations tend to show, to sundry causes; such as the floral influence or impregnation of other plants growing in their neighbourhood, giving rise to what are called by naturalists hybrids or mixed species; the nature of the soil, its degree of fertility, condition as to moisture, state of texture, &c.; the period when the seed of the crop is sown, and other circumstances: and though there may subsist, in the present instance, some uncertainty as to the particular cause or causes of the altered appearance of the plants growing in the fields above mentioned, yet it is highly probable that they have been raised from seed produced from some variety of Swedish turnips, and differ from the ordinary sorts of this species only in the way already suggested.

On this report having been given in, his Lordship allowed a proof to both parties, on the import of which he afterwards appointed memorials to be lodged; and, on considering these, he pronounced the following interlocutor, of the 20th May last:

'Having considered this memorial, that for the pursuer, and whole process, finds, That the defender sold two hundred weight of seed to the pursuers as good Swedish turnip seed: Finds it proved, that said seed, when delivered, was immediately labelled or ticketed with the defender's name, as seed purchased from him, so as to prevent any doubt as to the identity of the seed: Finds it proved, That the produce of some of said seed, inspected by Drs Rutherford and Coventry, turned out not to be Swedish turnip, or, at least, to be only a bastard or degenerate kind of it: Finds, That, both under the implied warrandice in the contract of sale, that the thing sold shall be of the kind described, and also under the express warrandice of the defender, that this was good Swedish turnip seed, the defender is liable to make good to the pursuers the damage occasioned by the defect in the seed: Finds, That it is of no consequence, in a civil action of damages, whether the said defect arose from accidental impregnation by plants of the same genus growing in the neighbourhood, or from any other cause, although the probability of such accident removes the suspicion of fraud upon the part of the defender. Therefore, finds the defender liable in damages; modifies the same to the sum of 59*l.* 10s. and the dues of the extract found due by the pursuers to Mr Cauvin, as damages and expenses; and to the further sum of 30*l.* Sterling, as a *solatium* for the loss of character which they risked among their customers; also in the expenses of this process, and decerns; reserving to the pursuers their relief against the defender for any further damages to which they may be subjected to their customers who bought any of said seed.'

A minute was afterwards given in by Messrs Dicksons, claiming the expense incurred by them in defending the action at Mr Cauvin's instance; and the Lord Ordinary found Mr Kincaid liable in 10*l.* Sterling on that account, with the full expense of extracting the decreet.

Against these interlocutors a petition was presented to the Court (Second Division), in which Mr Kincaid stated, That while tenant, in 1802, of the small farm of Inches, which consisted of about 20 acres, he purchased a pound of Swedish turnip seed at 2s. 8d., from Mr James Walker, merchant, Falkirk. At that time he had a number of bee-hives in his garden; and as he had been informed that the flower of the Swedish turnip afforded a great deal of food for bees, he sowed this seed upon half an acre of the garden, and the produce was in every respect beyond his expectation. The crop was much admired by all the neighbourhood; and gardeners, who came to see it, declared that it appeared the finest Swedish turnip they had ever seen. During the

the succeeding season, the remaining turnips were allowed to flower, chiefly for the sake of the bees; and the crop was so good, that it was suggested to the defender by some of his neighbours, that he ought to preserve the seed. He accordingly did so, and sold a part of it to Mr Walker, from whom he originally had the seed, who sold it again to other persons, who never complained of the quality of the turnips. The defender likewise carried a sample of the seed to Edinburgh, and offered it for sale to the pursuers, to whom he described the seed as it had appeared to himself and others. Messrs Dicksons invited the defender to breakfast with them, when he informed them of all the particulars regarding the growing of the turnips; that he had allowed them to flower chiefly for the sake of his bees; but that the plants had been afterwards so much admired by the neighbourhood, that he had been advised to preserve the seed, which he had accordingly done, according to the sample produced. Messrs Dicksons concluded a bargain with the defender at the rate of 10d. per pound. Their witnesses said that they afterwards kept the seed in a bag, with a label upon it, specifying whence it came, and that it was thence emptied into a drawer in their shop, and sold to the differest customers at a profit of about 80 *per cent.* They did not, however, take the precaution of sowing a part of this seed, to ascertain its quality, before disposing of it to their customers; but at the same time that they sowed a part, they began selling the rest.

In arguing upon this statement of the case, the defender contended, that the pursuers had not clearly established the identity of the seed. The result of the evidence was, that the seed was in their own custody. It certainly did not prove its own identity; for every person agreed in saying that it was very good turnip seed, and Messrs Dicksons might have done with the bag or drawer in which it was kept what they chose. The question came therefore to be, Could a purchaser subject a vender for damages, where it appeared that the identity of the commodity depended entirely on himself? It might be highly improbable that, either from accident or design, the seed should be changed or mixed. The defender, however, did not go upon probabilities; he did not say that it was probable the pursuers did so and so, but that it was entirely in their power to do so; that there was no evidence which excluded this entire power; and that even a mischievous person might have exercised it for the sake of a frolic, when the shopmen were not in the way. The pursuers' case, therefore, was not good, unless they could prove the identity of the article by its appearance, or show that it was out of their power to substitute other seed in place of it, by its either being

locked up in the custody of other persons, or sealed up and opened in the presence of witnesses. The pursuers had not done any thing of this nature. On the contrary, it appeared that the seed was sold in open drawers, near other seed of such a nature and appearance as might easily be mistaken for it; and deposited in bags which any person might have untied who had access to the shop or warehouse.

With regard to the conduct of the pursuers themselves in this transaction, the defender stated, that they were by profession seedsmen and botanists, very eminent in their line, and much trusted by the public. They knew that Swedish turnip, or roota baga, was a plant extremely liable to be degraded in quality by the impregnation of the *pollen*, or fructifying powder from other plants growing in its neighbourhood, and which might be distributed by the bees or the wind. They acted, therefore, with great rashness, in purchasing from an ignorant, inexperienced man like the defender, a quantity of this sort of seed, and in selling it for the purpose of being sown, without having seen the situation in which it was reared. They ought evidently to have only sold it for bird seed, or to have made trial of it by sowing a small portion in their nursery, or in a hot-bed. But it appeared in proof, that they had improvidently suffered their stock of this sort of seed to run out. This circumstance induced them to purchase from the defender, instead of commissioning seed from Gottenburgh or Stockholm, or even from the London seedsmen, who are accustomed to procure supplies from these parts. A profit of 80 *per cent.* tempted the pursuers to sell the seed indiscriminately to their customers, without giving any caution respecting the quarter from which it had been bought, or intimating that any hazard might result from using it as seed. In the mean while, it was believed, that no one of the more intelligent customers of Messrs Dicksons would have bought from them the seed in question, if they had suspected that, instead of being foreign growth, or of a quality tried and known by the pursuers, it was bought from a little tenant in Stirlingshire, who had raised it in his kitchen garden, where Messrs Dicksons had not seen it when growing. This, continued the defender, was an action of damages raised by the pursuers, to obtain a *solatium* for an injury done by him to their character and reputation. In every action of that nature, the pursuer must come into court with clean hands. He must be able to say, that, when doing his duty in the most correct manner, an injury was unjustly offered to him. But who did not see, that, in the present case, if a fault occurred, it lay wholly on the side of the pursuers? The defender acted in a fair and in a natural manner: he bought Swedish turnip seed from a dealer, who had received it from an eminent mercantile

cantile houſe in London: it produced on his lands an excellent crop, and he ſold the ſeed which it produced to the purſuers, men of reputed eminence as dealers in that commodity. From his ſtation in life, and the occupation in which he was engaged as an ordinary farmer, there exiſted no reaſon for relying upon his ſkill in a commodity of that ſort; and much leſs was it pretended, that any inquiry had been ſet on foot for aſcertaining how far the crop of turnip ſeed had not been expoſed to deterioration from the vicinity of other plants. On the contrary, the purſuers were contented to purchaſe, without inveſtigation, from a little farmer, the turnip ſeed which had grown in his kitchen garden. A profit of 80 *per cent.* removed all difficulties, and induced them to ſell it to the public at large, without giving notice that it was not foreign ſeed, or that it had grown in a moſt perilous ſituation. Their ſkill as botaniſts was entirely laid aſide, and they made no trial of the ſeed before they expoſed their cuſtomers to the loſs of a crop, from ſowing ſeed reared in the manner that has been deſcribed. In ſuch circumſtances, the defender contended, that it was very clear the purſuers could never vindicate their character as traders by an action of damages. If they ſuffered in their reputation, it was only from their own negligence, or want of that vigilance, which, upon ſuch a ſubject, it was their duty to exert as profeſſional men. In raiſing the action, they came into a court of law pleading their own turpitude. They had the advantage of ſuperior knowledge in forming their bargain, and could not be permitted to complain of the ignorance of the party with whom they had tranſacted.

As to the conduct of the defender himſelf, it was maintained, that he was entirely free from blame. The queſtion to be conſidered truly was, Whether the defender, after the plants had grown, after they appeared to have come to full maturity, and the ſeed perfectly formed, acted raſhly or improperly in carrying a ſample of that ſeed, not to a perſon as ignorant as himſelf, but to a merchant whoſe express buſineſs it was to deal in that article? Could he poſſibly ſurmiſe that the ſeeds would not produce good plants?—Here the extent of the defender's knowledge was not to be meaſured by that of the Court, nor by that of thoſe who had had a liberal education. Could any perſon in his ſituation of life ſuppoſe, that from other plants growing in the neighbourhood, or that from bees carrying the infinitely minute duſt of other plants, the produce would be affected? Neither could he know, that this ſpecies of turnip was only a particular variety of a larger tribe of plants, whoſe habitudes might be changed by a variety of circumſtances. The cultivation of Swediſh turnip had only become known within theſe few years.

It appeared from the evidence, that seven years had hardly elapsed since it was introduced into field culture. It was probable that its nature now was very imperfectly known That the produce of its seed, however, differed in a most astonishing manner from the original plant, was a fact that could not be doubted. The only theory which gave any plausible account of it was the Linnean system of botany, which classed plants, not according to those circumstances which would strike a common observer, as showing their similarity, but according to the peculiarities of those parts of their flowers, which were most minute and apparently insignificant. That system, which alone of those now recognised in science, could account in any measure for what was supposed to have happened in this case, and what was known to have happened in many others, was matter of controversy among the learned not many years ago; and the peculiarity of its terms, which were all unintelligible to uneducated persons, was calculated to prevent its diffusion. If there was any class of men less likely than another to acquire a knowledge of new systems, it was a small farmer, who belonged to a class of men that seldom changed their residence, and who were much less enlightened by intercourse with others, than those of the same condition, who resided in large towns. There was not, therefore, a circumstance which made the conjecture possible, that the most sceptical person in the defender's situation would have any doubt about this seed, or suspect that the produce might be different. That the lusty male cabbage in his garden, or the turnips in a neighbouring field, should have any intercourse with the Swedish turnip, or change the species, would appear a far more incredible event, than that they should be bewitched or viewed with an evil eye. The illicit connexion between these two plants seemed as improbable as that horses could be generated by the west wind; and it would be as easy to persuade any person of the truth of this, which seems to have been matter of belief in Virgil's time, as to make them believe that plants at some distance could alter the nature of others, by merely happening to be in flower at the same time. Could any sort of blame, therefore, be imputed to the defender, for not suspecting this? It was true he did not raise these turnips with a view to seed: but after they had grown and produced the seed, and the seed appeared perfectly formed, could he suspect that he exposed himself or others to any danger, by selling it to a person who dealt in that article? If the Linnean system was excluded, his case was perfectly good, becauſe it was proved that the original plants were Swediſh turnips. It might be argued, that the defender ought not to have dealt in this ſeed, without being fully aware of the

the nature of it. It was eaſy to ſay ſo after an accident had happened; but there was no ground which could lead the defender, or any other perſon in his condition, to think ſo at the time; and if ignorant perſons did not pretend to more knowledge than they really poſſeſſed, no blame could attach to them for diſpoſing of any article which might belong to them. If, inſtead of the Swediſh turnip ſeed, the defender had found in his garden a piece of ore of yellow colour, and his neighbour had told him that it was gold, could any blame attach to him for carrying it to a goldſmith, and diſpoſing of it to him at the beſt price he could get? Had the goldſmith, inſtead of making an aſſay of it, as he might have done immediately, mixed it with other precious metals in a ſervice of plate, at a profit of 80 *per cent.*, would he, ſuppoſing it to be an ore of ſulphur or iron, or ſome baſe metal, be entitled to bring an action of damages againſt the country man, for having ſold it to him for gold? The country man, like the defender in this caſe, did what the moſt circumſpect perſon in his ſituation would have done. The goldſmith, on the other hand, like the purſuers, neglected the proper precautions of his trade, in not making a proper aſſay before he mixed it up with other valuable metals; and therefore, if the purſuers ſuffered an injury in conſequence, they had only themſelves to blame for it.

The defender likewiſe contended, that he ought to be aſſoilzied from the concluſion in the ſummons for the damages and expenſes found due by Meſſrs Dickſons to Mr Cauvin; becauſe, 1*st*, That action was not inſtituted againſt them until eleven months after they brought their action againſt the defender; and the expenſes incurred therein might have been ſaved, had Meſſrs Dickſons not ſtaved off a deciſion by maintaining evaſive anſwers: 2*dly*, The defender was not made a party to that action, which, if he had been, Mr Cauvin, he averred, would not have demanded or taken a ſingle ſhilling from him; at all events, it would have entitled him to the benefit of an offer ſaid to have been originally made by Mr Cauvin, to ſettle his claim of damages for 4l. Sterling: and, 3*dly*, In point of law, the defender maintained, that he could not be ſubjected in theſe expenſes, as they had been incurred, upon frivolous grounds, by the Meſſrs Dickſons reſiſting Mr Cauvin's claim for damages.

On conſidering the petition for the defender, the Court, upon the 29th November laſt, pronounced the following interlocutor: "The Lords having heard and conſidered this petition, and heard the counſel for the parties *viva voce*, they, of conſent of the reſpondent, alter the interlocutor complained of, in ſo far as regards the *ſolatium* of 30l. Sterling, and aſſoilzie the petitioner from that article: Refuſe the petition *quoad ultra*: Find the petitioner liable

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in six guineas of additional expenses incurred by the respondents' appearance this day; and decern.'

A second petition was presented to the Court, in which all the topics contained in the former petition were resumed; and, in addition, it was stated, that the pursuers had exaggerated the amount of the damages for which they were found liable to Mr Cauvin, in stating them at 20l. instead of 12l. 13s. 1d.; and therefore, that the sum really found due, including expenses, was only 5 1l. 3s. 1d., being 7l. 6s. 11d. less than the defender had been subjected in by the interlocutor reclaimed against. The Court altered to that extent accordingly; but adhered, *quoad ultra*, to their former interlocutor.

The principles which the Court recognized in this decision, and as applicable to the case, were:—that if seedsmen could not make the grower from whom they purchase seeds, answerable for selling seeds of a description different from what they bargained for, the public could have no security that they would get the article they were in want of from the seedsman. On the other hand, if the merchant or farmer dealing with the seedsman should be held as liable to make good the loss sustained from the seed turning out unfit for the purpose for which it was sold, they would adopt such precautions as would prevent any thing of the kind from happening. Besides, it was held to be agreeable to the principles of strict law, that every person who sells a commodity to another at a fair price, virtually warrants the commodity as of good quality; and if a person sells one commodity under the name of another, he must be answerable for the consequences.

FOR THE FARMER'S MAGAZINE.

Reflections during a Winter Day's Walk.

> "*This fast and solid earth, that blazing sun,*
> *Those skies through which he rolls, must all have end.—*
> *What then is man? the smallest part of nothing.*"

However bleak and uncomfortable the country may appear, during the severity of winter, to those who view it from their firesides amidst the smoke and bustle of the city, I believe it to be indisputably true, that no season is more calculated to produce happiness in rural life, than that during which nature seems divested of all her allurements. At the commencement of winter, when hope may be supposed to have little sway over the mind, the alleviation of labour and the reign of plenty diffuse gaiety around the rustic circle. The festivities of the holidays beguile the period when we are least revived by the influence of the sun; and they are hardly concluded, when the renovation of the year, and the evident progress of the season's triumph over cold and darkness,

darkness, restore the husbandman to hope and activity. To those indeed of a turn for thoughtfulness, there is, I think, no part of the year so congenial, as the season when the trees are stript of their verdure, and the walks covered with the decay of the leaves. One of the calm and bright days of winter is perhaps the time when a saunter is most enjoyed,—when we can with the greatest pleasure and memory dwell upon past scenes,—grieve over circumstances of sorrow, and departed friends,—or rejoice in the happy issues, or laugh at the ludicrous events, of former days. A person, in such a train of meditation, will not perhaps remain long without calling to recollection the changes upon the surface of the kingdom, which a few years have produced. And should a man of middle age trace back in remembrance the different stages of inferiority to the days of his childhood; and from that point, in idea, and in an equal retrogressive scale of inferiority, dive into antiquity, he would, in a very few years, see us involved in all the horrors of barbarous ignorance. The positive results of investigation are, however, seldom exactly in conformity with the speculative inferences of sagacity; and the best supported arguments from probability must yield to the simple exposition of facts. When we look into antient times, we may have good grounds for supposing, that many of the arts of agriculture were little known or studied, and that a great part of our best arable lands were pastures of different degrees of value: but we shall be deceived, if we imagine that any antient and barbarous nations were not possessed of a considerable degree of knowledge and solicitude regarding the farmer's occupation. We have already seen, in your Magazine, that the *Hedui* and the *Pictones* rendered their fields very fertile by the application of lime: and the following two laws, enacted in the 9th century, by Kenneth, king of the Scots, will show that monarch to have had both an interest and a knowledge in agricultural affairs.

'*1st*, Let no man sow in the earth any grain, before it be 'purged of all the weeds. *2d*, He that, through negligent sloth, 'suffereth his arable land to be choked up and overgrown with 'weeds; for the first fault, let him forfeit an ox;—for the second, ten oxen;—and for the third, let him forego the said 'ground.'

There are several other laws, regarding agriculture, by the same prince, of equal use and good sense. That the arable land, however, could not, at a period far remote, have been extensive in Scotland, I have good reason to believe. In charters of the 17th century, the best fields near a very antient and populous town are called the *novæ culturæ*, and the *terræ adhuc minime laboratæ*; and I make no doubt that satisfactory evidence could be brought of

of this fact from a variety of different quarters. The face of the kingdom was, however, probably as beautiful in antient times as at present, from the richness of the pastures, and the luxuriance of the forests. The castles of the nobility, some of which still remain in view, while others have totally disappeared, must have added much to the effect of the scenery; and although Edinburgh was not, in the 14th century, anywise to be compared with the country towns of any note in the Netherlands, yet I apprehend that the Scots gentry had good reasons for confining their magnificence to the country, and frequenting the capital as little as possible.

When we peruse the page of history, and look to the present state of science among mankind, we cannot fail to be struck by the mutability of human affairs. Where, but a few centuries ago, the landscape presented the gloom of the forest thinly inhabited by men, and by beasts hardly more ferocious than they, we behold the seats of commerce, learning, art and luxurious refinement; and when we turn our eyes towards those nations from which the light of science was first diffused over the earth, we are saddened by the view of the deserts amidst which their ruins are scattered;—ruins, which nothing, except their matchless grandeur and durability, could still preserve as fleeting monuments of the greatness of the people who could imagine and execute such stupendous works, and which a few centuries more must consign to the dust.

" All has its date below: the fatal hour
Was register'd in Heaven, ere time began.
We turn to dust, and all our mightiest works
Die too: the deep foundations that we lay,
Time ploughs them up—and not a trace remains.
We build with, what we deem eternal, rock:
A distant age asks when the fabric stood—
And in the dust, sifted and search'd in vain,
The indiscoverable secret sleeps. "

To trace cities from the smallness of their beginning to the days of their zenith, and thence to their caducity and final extinction through all their gradations, would require as great a capacity of mind, as to trace the acorn through all its changes up to the mighty oak, and that again down to the disunion of all its parts, and total disappearance; but experience teaches us to anticipate the future from the invariable examples of the past. Amidst the busiest confluence of men in even the streets of London, the conviction must, if courted, come upon us, that we too must have our turn;—that time, which is ever changing the face of the earth, has no mandate to spare us from the general fate;—and that,

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from the more perishable nature of our works, they shall have little chance of competition in after ages with the Egyptian ruins, or the remains of Palmyra or Athens. It has been the study of many philosophers, to ascertain the original formation of the earth and of our solar system. Were we to take Buffon for our guide, we must believe that our globe, from being a part of the body of the sun, has taken about 35,000 years to cool into its present temperature; and that, in about 70,000 or 80,000 more, its surface will be cooled into a mass of ice, and incapable of being inhabited. Ingenious as his theory is, and well fortified by probabilities, I think it contains insurmountable objections. It would, however, be satisfactory, could we from facts ascertain how far our present climate corresponds with that enjoyed three or four thousand years ago: though, from the facts extant, I apprehend the real state to be very difficult of discovery. On one side, it is very difficult, when we read that England produced wine for some centuries after the Conquest,—that Ireland was then the seat of learned men and science,—and that Greenland was mistress of a population which the increasing intensity of the cold forced to leave it,—to withhold our belief that the earth has declined in warmth within the last thousand years: While, on the other hand, we find that animals which now only breed in climates as far north as Lapland, were antiently common in Germany,—that seas which were formerly occasionally frozen, are now always liquid,—and that we are now exempted from those summer frosts which used in antient days to ruin the vegetation, and cause famines. In addition to these facts, I think that the description of the climate of England given by the Romans who first visited it, is more unfavourable than it deserves in our days.

Upon the face of the earth much change has been effected by the gradual lapse or cadency of water, by the concussion of earthquakes, by volcanoes, by the continual efforts of the ocean, and by the unceasing industry of mankind.

I shall conclude these reflections of my walk, by stating the recurrences of a cause which I think well worthy of the attention of mankind; and as several facts which I mean to apply to my opinion, are not stated, by any author that I have perused, as in the least deriving their origin from the cause from which I presume they did, I shall leave them to the better informed, wishing rather to receive than to enforce instruction. I think, Sir, it is evident from history, that very important effects have been produced by the returns of the comet of 1680 to our part of the solar system. The period of the revolution of this comet is known to be 575 years; and the eighth return, tracing backward from the last appearance, coincides exactly with the received belief of

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the period of the great universal deluge; and Dr Halley indeed supposes this to be the case.

The second return, being 1767 years before the Christian era, is coeval with Ogyges; and it may be remarked, that this prince, and all his people, perished at that time by a deluge. This appearance was by the antients thought to proceed from the planet Venus, which changed her colour, size, figure and course.

The third visit, in 1193, is implied in the fable of Electra, the seventh of the Pleiads, who have (to use Mr Gibbon's words) been reduced to six since the Trojan war. That nymph, the wife of Dardanus, was unable to support the ruin of her country; and, abandoning the dances of her sister orbs, fell from the zodiac to the north pole; and obtained, from her dishevelled locks, the name of a comet. I must add to this account, that Homer, without the least knowledge of the laws of attraction, states, in the beginning of the 12th book of the Iliad, that after the taking of Troy, the works he celebrated were destroyed by a deluge, occasioned both by the rising of the ocean, and by the ravages of seven rivers. This fact has appeared so strange to many, that some, not knowing why it was introduced, have thought it an interpolation; and others, that Homer had the address to insert it, in order to conceal the apparent want of truth in his description. Homer, surely, in a work so much adorned with imagery, need not have been so cautious; nor needed others have taken the trouble of rendering a poet strictly accurate in his descriptions of places, whose other descriptions borrow so much from fiction. I believe that Homer, who built his edifice upon the basis of received opinion, merely stated a well-known fact, and one for which we can perceive a sufficient cause. How much unavailing trouble, then, about the relics of the *Troad!*

The fourth period expired in the year 618, a date which exactly agrees with the *tremendous comet* of the Sybil, and perhaps of Pliny, which arose in the west two generations before the reign of Cyrus. Of this appearance I do not know of any recorded effect, if perhaps we do not find the disappearance of the continent Atlantis to correspond with it.

The fifth visit, 44 years before the birth of Christ, is well known; it is the same as that of the famous *sidus crinitum* of the games which Octavian celebrated in honour of Venus and his uncle.

The sixth appearance was in the 5th year of Justinian, which coincides with the 531st of the Christian era: and as it was in the preceding instance, so it was in this, attended by a remarkable paleness of the sun for a great length of time. Such was the corruption of the atmosphere, in the reign of Justinian, that the plague

plague raged with a violence never known before or since; and the air did not recover its salubrity for the long period of 52 years.

The seventh return, in the year 1106, (Henry I. of England), is recorded in the chronicles of Europe and of China. Of this return, I think I may state the deluges mentioned in history as a probable effect. Gibbon does not hesitate (though not enforcing any opinion) to overlook the difference of accounts in the preceding return, though they amount to eight years, in fixing the identity of the comet. Trussler's chronology states the year 1100 as the epoch of the deluge which destroyed the Goodwin estate; and Fordun and Buchanan mention inundations astonishing, *about* the period which Dr Trussler mentions. Buchanan is not particular as to the year; but speaks of the prodigies of *that age*. Boethius mentions 1097,—when many towns, great woods, both in England and Scotland, were overwhelmed by the exundation of the German Ocean;—likewise, that the land of Moray in Scotland was desolated by the sea—castles subverted from the foundation—towns destroyed—monstrous thunder roaring horrible and vast. Fordun expressly mentions a comet, to which he ascribes the influence of the waters;—the sowing of winter grain was prevented *aquarum nimia inundatione*. The records of the priory of Pluscarden mention the inundation to be in 1010, (may it not be mistaken in the reading *for* 1106?). The traditions of the deluge which changed the north coasts of the states bordering upon the Baltic, point to about 1100. Buffon mentions a great inundation, in the reign of Henry I. of England, upon the coast of Flanders. Henry ascended the throne in 1100; and in the 1095, there was a deluge in Syria, which drowned a number of people, (*Alsted's Chron. ch.* 25.) From these circumstances, I certainly attribute all these inundations to the visit of the comet about 1106; and I believe the trifling variations in the accounts, may be easily attributed to the inaccuracies of the relation of facts, taken, at a distance of time, from the memory, and not recorded as of much import as to date; and to the erroneous reading of the old writing or figures in the manuscripts.

The eighth return, in 1680, was, Mr Gibbon says, presented to the eyes of an enlightened age. Its road in the heavens was observed with exquisite skill by Flamstead and Cassini; and the science of Newton, Bernouilli, and Halley, investigated the laws of its revolution. I do not find the effect of the gravitation of this comet was perceptible upon the earth at this visit; although, in passing through its southern node, it passed within a semidiameter of the sun of our orbit, and would have occasioned a total destruction of the earth by fire or concussion, or by carrying it off

off in its course, had not it been, at the time, in a distant part of its orbit from that which the comet passed.

The ninth return will be in the year 2255: but whether it will then be observed by the philosophers of Siberia and America, with all the coolness Mr Gibbon supposed,—or create more serious sensations,—must remain in the womb of time.

The reflections upon the influence which this great comet seems to have had upon the globe, in so many instances, has convinced me, that as it has been the cause of the great deluge, it will likewise be that of the final conflagration. The belief of all ages, and of all nations, concur in showing, that such an event will happen; and some religions even point at the rolling of a comet below the moon, as the cause of the catastrophe. Our own religion paints, in very plain colours, the effects of vast gravitation at the final hour—the tremendous rising and rolling of the ocean —and the shaking of the earth, the natural effect of great and unequal powers of attraction in the different parts.

Should the case appear to your readers as it does to me, my winter's walk will not be without its proper use. We cannot too often reflect upon the transitory nature of our existence, and of that of the vast machinery by which we are surrounded,—so amazingly great to our faculties, but nothing in the eyes of the Godhead: and we shall find our minds exalted in the meditation of our littleness, when we think, with the poet, that—

'The cloud-capt towers, the gorgeous palaces,
The solemn temples, the great globe itself,
Yea, all which it inherit, shall dissolve,
And, like the baseless fabric of a vision,
Leave not a wreck behind.'——

I am, Sir, your constant reader,

November, 1808. SEVERUS.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

Cursory Reflections on Leases.

SIR, *Lawieston, 31st December*, 1808.

I am extremely happy at being unexpectedly, and, I assure you, very accidentally, the means of exciting discussion on the subject of the draught of a lease published in your Magazine; * a subject which, I humbly apprehend, is one of the most important that has been laid before your readers. Considering how immediately connected

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* No. XXXIV. p. 182.

connected this subject must be with hundreds of them, it is difficult to account for the general silence on this draught, unless on the principle *consentiendi et silendi.*

The lease, generally speaking, may be called the mould in which agriculture is cast; consequently, it becomes of the last importance, that every flaw in it be soldered up, and every inconvenient protuberance beaten down. I would, therefore, with the utmost deference, propose a warm solicitation to your numerous intelligent readers, as a matter of national utility, to bring forward such hints as their experience necessarily qualifies them to give,—not in confinement to the lease under consideration, but respecting our Scotish lease in general. Much imperfection, certainly, exists in the present styles of this contract; and, if the experience and observation of those connected with it could be collected, such a lease might thence be constructed, as would harmonize landlords with their tenants, and greatly increase the product of our soil, upon which, in the present state of Europe, our existence seems to depend.

Your correspondent Mr X. S., to whom the public is obliged for his remarks on this subject, more especially as he seems to be a practitioner, and to be privately acquainted with the lease under discussion, differs from me.* But it is surprising that such a gentleman, in his answer, should have adopted the plan which an angry child or a vanquished reasoner generally takes,—of leaving the subject, and accusing its supporter. He 'indeed suspects that your Laurieston correspondent has never been an *outgoing* tenant, and never been an *incoming* tenant;' which *suspicion*, if connected with the argument, ought to serve principally to remind us *both* to divest ourselves of the prejudices which these characters have engendered in our minds. I should have liked to have heard his opinion on the practice proposed, of employing tradesmen or other qualified persons, to visit, and report upon the state of the houses, &c. on a farm at the tenant's removal. This is an essential part of my proposition, which Mr X. S. has been '*proper*' enough to overlook. My humble opinion is, that, by acting according to the clause as it was submitted, unfair strictness would be used to no party, (for nothing is unfair, if within the stipulation); and, while business would be more smoothed and expedited, much ill-will and gibing, and even litigation, would be put a stop to. I beg Mr X. S.'s pardon, if he has been an *outgoing* tenant, as I am sure he has not been an *incoming* one; for, without exception or mercy, he lashes off the field the whole of the latter description, as '*smugglers and whisky-retailers;*'†

* No. XXXVI. p. 466; see also No. XXXV. p. 344.

† P. 466.

all the numerous and hitherto celebrated class of young *incomers*, who have studied in the Berwickshire and Northumberland schools, &c. &c. falling under the general anathema!

I shall postpone making any comments on Mr X. S.'s other remarks, till he fulfils his promise of giving his opinion upon the rest of the lease; when, Sir, if you think proper, as I have been drawn into this question already, I shall submit a few strictures concerning it in general. In the mean while, believe me, Sir, yours most respectfully,

J. B——k.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

Strictures on X. S.'s Letter, p. 466. vol. 9th, concerning the Draft of a Lease framed for an Estate in the South of Scotland.

SIR,

When correspondents address you, I believe most of your readers, like me, will expect instruction communicated with the benevolent intention of doing good to the public; and, in discussing any subject, that unfounded assertions will not be substituted for fair argument. How far the letter of your correspondent X. S., inserted in p. 466 of your Magazine, No. 36., has any claim to that spirit, or these intentions, I shall now take the liberty of submitting to your consideration.

The letter to which I allude, appears as if intended to be an answer to the observations of your Laurieston correspondent; but, after the most attentive perusal of this production, I do not find any refutation of what was stated in the observations alluded to. On the contrary, the mention of these observations seems to have been introduced with no other view than to afford a pretence to your correspondent to offer his opinion on that lease; for which, had he done it with that candour and fairness becoming every inquirer after truth and knowledge, the public would have been obliged to him.

With these few general remarks, give me leave, now, to examine this correspondent's opinion offered to the public, tending to condemn the lease. It begins with an assertion, that "it is ill calculated for the encouragement of an industrious tenant, or the improvement of the neglected estate for which it was intended." Here is not only an opinion, but an assertion, importing that the estate was much neglected. For what purpose this assertion was brought forward in an abstract question respecting the merits of the lease, and upon what evidence it is founded, is not so obvious.

Your correspondent next observes, 'A few, and but a few of the clauses, carry out the report Dr Coventry assisted in framing when the estate was surveyed.' From this, it would appear your correspondent is more in the secret than I can pretend to be; and that he had not only seen Dr Coventry's report, but been privy to the assistance he gave in framing the lease. How far this may be true, and whether or not your correspondent may be anyways connected with Dr Coventry, I cannot pretend to say; neither is it of the smallest importance to the public. But the evident tendency of the remark is, to relieve Dr Coventry of any blame, in the faults this anonymous writer ascribes to the lease, which, it would seem, he had known was framed with the Doctor's knowledge, and under his advice. Whether or not Dr Coventry will thank this writer for his courtesy, is a little doubtful; but, without stopping to inquire, I observe—

Your correspondent, applying himself to J. B—k, says he suspects he has never been an outgoing tenant; and in the very next paragraph he says, 'I suspect Mr J. B—k has never been an incoming tenant.' Would it not have done better to have said, in one word, he suspected Mr J. B—k has never been a tenant in any shape;—therefore, his opinion is not to be regarded? This, no doubt, is a very concise method of refuting any opinion. His illustration, quoted from Mr Marshall, is not of so easy application, nor indeed can be applied, in any shape, to an anonymous person, of whose birth, parentage, &c. we know nothing; but when it is conjoined with the assertion it is intended to illustrate, that Mr J. B—k assumed a 'preeminence in favour of the incoming tenant, which experience does not teach, nor practice justify,' it amounts to mere assertion and declamation, and proves nothing.

Your correspondent, proceeding in the same declamatory style, and comparing the merits of an outgoing with those of an incoming tenant, says, 'The latter, frequently new adventurers, probably a mechanic, a cattle-dealer, a horse-dealer, a fisher, a smuggler, or a whisky-retailer, outbid the judicious farmer,' &c. All this, however, is still mere declamation, and proves nothing. So far, it is perfectly innocent; and the public will treat it with the attention it merits. But what follows is by no means so harmless. In a parenthesis, your correspondent throws off his character of critic, and comes forward as a witness; and states, from *his own knowledge*, that *such adventurers have insured* a preference, by means which, I must say, appear the most unjustifiable; and would reflect disgrace on every party concerned in such transaction. This, no doubt, is demonstration with a vengeance, especially when it is joined with the note added by refer-

ence upon the same page, applying it, in a manner too plain to be mistaken, to an estate in the south border of Dumfries-shire. It appears to me to form a subject more proper for the cognizance of a law court, than a periodical publication. A discussion in that way would be attended with this additional advantage, that this anonymous witness could be cross-questioned as to the truth of his assertion. Dr Coventry, too, could be adduced as a witness. Perhaps he may have been a party to reletting every farm on that estate; in which case, he could be asked particularly, whether or not he knew any thing of such transactions as those alluded to by your correspondent; and this ultroneous witness would have an opportunity of pointing out that motley band of adventurers which the proprietor of the estate had very unadvisedly preferred to many skilful, experienced, knowing, and worthy old tenants.

I beg leave to add one further remark on this part of your correspondent's letter. He agrees in the observation of your East Lothian correspondent, that it is an 'invidious task to contrast the character of the modern farmer with his predecessor;' and yet, almost in the same breath, only a few lines before, he asserts, that in knowledge and experience, disposition and principle, the '*new is seldom the old tenant's better.*' How inconsistent and inconclusive is this method of reasoning!

In the next paragraph of your correspondent's letter, he proceeds to object to the obligation in the lease upon the tenant, to furnish carriages of the materials for the buildings; and in order to bring discredit on this obligation, has recourse to the words *arrage* and *carrage*, which no doubt connect with them the ideas of the odious services of times of remote antiquity. The only other *objection* to this obligation, if indeed it merits that name, seems to resolve into this, that the tenant will have enough of extra work upon hand, independent of such carriages.

I cannot help suspecting, from this paragraph, that your Dumfries correspondent is very much in the same predicament with that imputed to J. B—k. He has never been either an incoming or outgoing tenant; in a word, that he knows nothing about the matter. If I am not mistaken, the reason for taking the tenant bound in carriage of materials, is this, that the burden of buildings or repairs may be rendered more easy to both proprietor and tenant by the division. In the case of buildings, it is fair and usual to stipulate a certain sum to be laid out for the tenant's accommodation; and most willingly do all good tenants agree to pay a per centage for such outlay. But as it is a consideration of no small consequence, that this per centage should be kept as low as possible, and as the carriage of materials

terials is a heavy article in such outlay, so, every wise tenant will consider, whether or not he has as much time and labour to bestow as will be adequate to that object; and, if he has, he surely cannot employ it better. Accordingly, so far from declining, most tenants are the first to propose this stipulation, in order to keep down the expense of building, and thereby lessen the rent. Thus far, therefore, your correspondent proceeds upon mistakes, and finds fault with a stipulation introduced as much for the benefit of the tenant as of the proprietor. But when I have said this, I must take the liberty to add, that the enactment he proposes to substitute in place of this clause, strongly betrays the grossest ignorance of farming, viz. 'that the tenant should *not work for hire* with either his farm horses or servants during the first three years of his lease.' Now, Sir, give me leave to ask, if you ever knew of any farmer above the degree of a carrier, cottager, or some of the motley group whom this libeller introduced into the first part of his epistle, who would either work himself, or let out his farm-servants, horses, &c. to work for hire during any period of his lease whatever, provided he had a farm of extent sufficient to employ them?

Upon the remaining criticisms of this paragraph, I think it quite unnecessary to trouble you with any remarks. The criticisms upon the words *proper*, *general*, and *good*, (dull enough in themselves) lead to no serious conclusion; and the writer's *veto* upon the lease, with which he concludes, is but one feeble voice.

In the third paragraph, the writer notices an indulgence introduced in favour of tenants, allowing them to name their heirs. Here give me leave to observe, that your correspondent seems, in this instance, equally ignorant of law as of farming. In this clause, there is certainly nothing new; because a tack to *heirs* simply, would descend to the heirs by destination of the grantor, as well as to the heir of line, whether there had been any such stipulation in the lease or not. The clause, therefore, is not new, but a little better expressed than usual. Your correspondent, indeed, suggests a further improvement upon this clause, by adding a power to dispose of the lease under suitable conditions. Upon this point, I shall take the liberty of stating a few remarks in the sequel. In the mean time, give me leave to observe, that although thus far the paragraph is innocent, and may pass; yet, in the long laboured period, introductory of this suggestion, the writer has introduced an inuendo, by no means either so innocent or inoffensive, importing that the parish church doors in the neighbourhood of this proprietor's estate, are every Sunday loaded with the advertisements of the

sales of the chattles, &c. of his tenants, by virtue of a warrant of the judge-ordinary. And when, to this, is added the note subjoined by reference, it is hardly possible to conceive any thing more calumnious or improper. It is no doubt evidently nothing more than the assertion, or rather abuse, of an anonymous writer; therefore ought not to be dignified with the name of reasoning, and will be treated accordingly.

In the next paragraph, he attacks the stipulation of the per centage upon money to be expended in improvements. This he does upon several grounds, and in a very desultory manner; but the chief objection seems to rest upon this principle, that it is an usurious stipulation. If this indeed is true, there can be no doubt as to the impropriety of the clause. The only question, therefore, that remains to be tried, is the truth or falsehood of the position.

I assume, as a general proposition, that, in all buildings, seven per cent. is no more than a fair return upon money laid out.

My next proposition is, that any bargain with regard to this point, is matter of fair covenant between the parties, totally unconnected with any public law yet known; and I assume this further axiom, that if parties have contracted, or shall contract for themselves, the public have no right to interfere.

I do not assume these premises as unknown in the law of either Scotland or England. I hold them to be the law of both countries, until better instructed; and if my view of this general principle is right, give me leave to put a few questions to this correspondent of yours.

1*mo*, Who told him that any general rule could be established as to the extent or measurement of any farm? Must not that always depend upon the joint opinion both of lessor and lessee?

2*do*, Who told him that the payment of six per cent. on improvements is a barrier in the way of agriculture? Did he learn this from Dr Coventry? Does not the daily experience of almost every county in Scotland prove directly the reverse; and that tenants are always eager to grasp at such a condition, when they have the good fortune to fall in with landlords, whose opulence and liberality can enable them to make the advance? In a word, is it not better to pay a fair per centage, than sink the capital, which the farmer must do, if he is to incur the expense of the improvement? One obvious remark must occur to every person who considers the subject; namely, that this part of the contract must at all times be the subject of a particular bargain between the parties, in which the public law of the country has no sort of concern. It cannot, even by any perversion of language, be termed an exaction; because the request must at all times

come

come from the tenant; nor has it the most remote connexion with the statutes of usury, because the capital is not lent, but sunk; in most cases, I believe I may add, irrecoverably sunk. As well, therefore, indeed with a much better grace, might he attack the sale of every annuity,—sales which take place every day, and which the law fully recognizes. In the one case, money alone is the subject of the bargain; in the other, the improvement of the farm, and advantage resulting therefrom, is the subject of bargain; of which the tenant must evidently foresee the benefit he is immediately to derive from the purchase.

Upon this point, too, your correspondent is pleased to have recourse to what he terms facts; which, he wisely observes, are better than a cloud of such calculators. But here, again, I confess I was disappointed; because, when I proceeded, in expectation of having some striking facts or experiments stated to illustrate his proposition, I found nothing but dry inconclusive assertion, or observations so trite, as scarcely to merit notice; such, for example, as that clap-dikes with a hedge are not sufficient fences for the first five years, and that drainage yields the most immediate return. The meanest farmer in Dumfries-shire could have told him this. But how does this apply to the proposition, that the payment of 6 per cent. on improvements is a barrier in the way of agriculture, or that parties have not a right to bargain for expenditure of money for these purposes, and that such bargains are in any degree unlawful?

Your correspondent proceeds, in the next paragraph, to offer a few observations on the reservations for planting. Here, again, I confess I was disappointed. I was glad to find he approved of planting, and expected something new to be said on the subject; but you may guess at my astonishment, when I had finished the paragraph, to find no other information, excepting that his Lordship's nurseries were overgrown; and a kind of sly hint that he would not allow his tenants to touch them. I believe, in this respect, his Lordship is by no means singular.

But I come now, Sir, to take notice of what appears to have raised your Dumfries-shire correspondent's indignation to the highest pitch; I mean, the clause by which the lease becomes vacated at the landlord's option, in the event of the tenant's bankruptcy. This clause, he says, 'seems to be an infringement of the eighth commandment.' His illustrations, however, so far from proving his assertion, appear not very intelligible, although abundantly abusive.* With this, however, I have no concern; my

* The assertion, as to the legality of the clause, has already been noticed. It appears a little doubtful in what class to place the following

business is with the clause itself; and particularly with what is asserted by your correspondent, namely, that the clause or obligation is greater than the statute or public law authorises. If this is true, there can be no doubt it ought to be expunged; though, at same time, it must strike every reader, at first sight, that the proprietor must have been very ill advised by his lawyers, if he admitted such a clause into his leases, as was neither authorised by statute, or common law. But, without further general remark, I shall now take the liberty of submitting a few cursory thoughts upon this clause, just in the order they occur, leaving to proprietors and farmers, of more knowledge and experience, to make what use or improvement thereof they may think proper.

Permit me, then, in the first place, to observe, that it appears the object aimed at by this obnoxious stipulation, is to exclude bankrupts and their creditors from the possession of the farm; and if so, the first question that occurs is, whether or not this object is fair? It certainly is not repugnant, either to statute or common law; nay, more, is it not perfectly fair and proper, both in a moral and political point of view? If, therefore, the stipulation has no other object, and can be wrested to no other purpose than to exclude bankrupts and their creditors, your correspondent's wrath against it can arise from no other apparent cause than this, that it seems so far to be perfect, as to insure the end for which it has been framed.

The truth is, the intention I have just now mentioned, is substantially the same as that aimed at by the clause excluding assignees and subtenants. But experience having shown how easily such exclusions may be evaded; and these evasions having received too much countenance from the contradictory decisions of courts of law, the stipulation in question seems to have been framed in such a manner, as to render the object aimed at, the subject of particular bargain, resting upon this general rule, that where

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lowing illustrations;—a royal grant to give the clause effect,—his comment on particular words in the obligation—and the sapient question he puts, importing that the statute law required a deed of renunciation—and, lastly, his affected concern for the stamp-duties. All these may form, to some minds, very convincing arguments or illustrations. But I must confess, for my part, I cannot discover, in the whole paragraph, any thing else than the most unqualified and calumnious abuse; which appears the less justifiable, if it is considered, when this writer descends into particulars, and refers to prosecutions in which the validity of the clause has been tried, it is naturally to be presumed he has some knowledge or connexion with the parties, in whose private interests he thus takes upon him to intermeddle, perhaps misrepresent.

where parties have bargained for themselves, courts of law must of necessity give effect to such contracts, unless the object of them can be shown to be contrary to statute or public law, as your correspondent has roundly asserted.

That it is not contrary to law, either civil or moral, seems perfectly evident; and I feel myself fortunate in being able to quote, from your own Magazine, an authority, in my opinion, much more respectable than your Dumfries-shire correspondent; I mean, that of another of your correspondents, upon the same subject, (vol. ix. p. 441.) His opinion is, 'The right of landlords to exclude assignees and subtenants is undoubted.' He no doubt adds, 'but its policy appears to be questionable.' Upon this point, I may probably hereafter say a few words. But it is not the policy, it is the legality and fairness of the bargain that is now the question in discussion. The discussion of this subject I admit to be perfectly fair; and had your correspondent X. S. followed the example set him, and combated the proposition like a philosopher and a man of candour, the public would have been obliged to him: but I can find nothing like reason or argument to prove his proposition; nor indeed any thing but senseless calumny and declamation. Perhaps the stipulation he impugns may be found so impregnable, as to admit of no other mode of attack. Certain it is, the exclusion of assignees and subtenants, and the clause excluding a bankrupt tenant and his creditors, rest upon the same basis, namely, the *delectus personæ;* which, if I am not mistaken, our law says, is necessarily inherent in the very nature of the contract. Both exclusions are substantially the same, and must stand or fall together. If, therefore, the principle on which they rest, be established upon sound law, and sanctioned by immemorial usage, it would require very strong reasons indeed to shake this fabric.

Were it necessary to discuss the reasonableness of this *delectus personæ*, so strongly founded in the law of this country, I think it may be fairly deduced from the very nature of property in which it is inherent. But I rather choose to leave this point to the speculations of the Civilian, and to return to your correspondent above quoted, on whose remarks I shall take the liberty of throwing out a few observations.

I have already noticed, that he admits, in the most unqualified manner, the landlord's right to exclude assignees and subtenants, which, in my view of the case, is in every respect equivalent to an exclusion of bankrupts and their creditors; because, you will please observe, every bankrupt *may be compelled to denude* himself, either by voluntary or legal deed; that is, upon his becoming bankrupt, he must either assign or subset, as directed; which, by the lease, he has no right to do.

But

But your correspondent says, 'I do not think the law would sanction a clause of *irritancy* in the event of a tenant becoming bankrupt, provided the rent is continued to be paid.' I much doubt, that gentleman has not fully studied the clause in the lease now under discussion; otherwise he would have viewed this matter in quite another light. You will please observe, an *irritancy* or *forfeiture*, always *presupposes* a *previous* or *antecedent* right in the party to be *irritated* or *forfeited*. Now, give me leave to ask, what antecedent right have the creditors of a bankrupt in a lease, whereby assignees and subtenants are excluded? and, if no antecedent right can be found, is it not clear the creditors can forfeit nothing; so that, *quoad* them, there is no irritancy?

But it may be asked, why irritate the lease *quoad* the bankrupt tenant? The answer is plain; he has brought himself into that predicament, that he must of necessity contravene the grant. He must either assign or subset. From thenceforward, the interference of the landlord, in my opinion, becomes unavoidable. He is then called upon to judge for himself, and to say, whether or not he chooses to permit this bankrupt tenant to continue in the management of his farm for the behoof of his just and lawful creditors, or perhaps to sell the lease with his consent, after which all exclusions would be at at an end. The third and last alternative is, that, foreseeing consequences in either of these measures ruinous to his farm, he, like every other creditor, finds it necessary to provide against loss, by clearing the farm to make way for a solvent tenant, who will do justice to the premises and to himself.

Your correspondent, however, puts a case, that perhaps the tenant might have been a bankrupt before he entered into possession; from which he seems to infer, the landlord had no right to complain, or to enforce the condition. But if this proves any thing, it proves a great deal too much. In the first place, it implies, that the landlord knew, and contracted with a bankrupt; if so, I will readily admit he can have no right to enforce the condition; nay, more, I think both the exclusion of assignees and subtenants, and the condition of bankruptcy, would have been perfectly absurd, if not worse. But did you ever know any landlord who would wittingly and willingly let his farm to a bankrupt? Would any man, in that predicament, have the effrontery to make the request? Does not the bare statement of the proposition carry its own refutation *in gremio?* At same time, I must admit, that experience and observation have taught me to believe, that landlords are far from being so strict and attentive in their inquiries after the circumstances and characters of tenants offering for their farms as they ought. But I cannot believe any instance

stance can be produced of a landlord accepting of a *notour bankrupt* for his tenant; or that he would accept of any tenant *substantially bankrupt* at the time, if he knew it. And here, you will observe, the clause under discussion ascertains, in the most accurate terms, the predicament which shall be held to be a *proof of bankruptcy*; so that, on this point, there can be no mistake. Nothing is left *in arbitrio judicis*; and thus far the stipulation may be considered as an improvement upon the usual clause excluding assignees and subtenants.

Viewing, therefore, the lease as a fair contract entered into between a judicious landlord, aiming at a full rent and the improvement of his farm, on the one part, and a tenant *bona fide solvent*, and having substance adequate to the rent and stocking of the farm, on the other part; the exclusion of assignees and subtenants, and providing against bankruptcy, which of necessity admits them, appears to be not only perfectly fair and legal, but even a prudent measure, which has been sanctioned by the wisdom and practice of the remotest times. And your correspondent well observes, third parties have no right to complain of a stipulation so universal in all contracts of that nature—I had almost said inherent in the very nature of the contract itself. And if this stipulation has been rendered so clear and unambiguous, as to preclude the possibility of doubt, third parties have rather cause to applaud than complain; because, thereby, they are prevented from entangling themselves in the doubtful labyrinth of a lawsuit, upon clauses ill defined and liable to misconstruction.

Having submitted these observations on the legality of the clause so obnoxious to your Dumfries-shire correspondent, it is almost unnecessary for me to add, that what he proposes as an amendment should be termed an innovation upon the almost universal subsisting practice of the country, namely, the exclusion of assignees and subtenants in leases. Was this practice to be established, and leases let to the tenant, his heirs and assignees, there would, no doubt, be an end of the obnoxious clause which has given so much offence to this correspondent; but, at same time, his amendment, so much resembling an ill digested draft of part of a trust-deed, would be also unnecessary; and the rights of parties would rest upon the basis of a simple contract for a temporary right disposable at pleasure, and rendered an article of sale to all and sundry. Whether or not such a new order of things would meet the approbation of the landlords of Scotland, may be matter of after consideration. At present, I incline to relieve you of any further trouble in considering that point, by concluding this epistle, and subscribing myself, your most humble servant,

AGRICOLA TERTIUS.

NOTE.

NOTE.

THE Conductor at this time refrains from offering any remarks upon the above important and ingenious letter, which he understands to be from high authority; though he must dissent from several principles therein inculcated, as may be exemplified in a future Number, when the draft of the lease alluded to shall be examined with some attention. It would be premature, therefore, to offer any particular observations at present; though there can be no impropriety in stating, that many amendments seem to be necessary, before that form of a lease can be considered in the light of a perfect one, as shall afterwards be shown. The Conductor, in the mean time, expresses regret, that a passage in one of the foot-notes of X. S.'s letter, which rather carries an improper reflection, should have given some offence to a most respectable gentleman, who is understood to be law agent upon the estate for which the lease was framed. The passage escaped attention in the hurry of revisal; otherwise it would have been expunged. N.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

Hints concerning drawing a Plough by Shafts.

SIR,

IN the course of my acquaintance with farmers and farming, I do not recollect ever having heard of, or seen, a plough drawn by shafts, in place of the harness usually adopted.

A friend of mine lately suggested to some practical farmers the use which shafts might be of to a plough; and they all seemed to agree, that, on level ground, where a wheel-plough could be used, shafts would be of very considerable utility; but they deemed it necessary that the shafts should be so contrived as to fix to the muzzle of the plough.

Perhaps (should you insert this in your valuable Magazine) some of your correspondents may be able and willing to give their opinion on such a plan. I am, Sir, your most obedient,

A.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

Information requested concerning Turnip Culture.

SIR,

As the season for sowing turnips approaches, it might be of much use to this district, and to others where their culture is little

little understood, to be informed, through the medium of your next Number, what varieties of this root are held in most estimation by the agriculturists of Norfolk, Northumberland and Berwickshire;—where the seed of those varieties is to be procured in the greatest perfection;—and where a drawing or model of the most approved barrow can be seen.

Permit me to solicit, through the same channel, the remarks of *Arator* on agricultural subjects, as frequently as he finds it convenient to give them. I do not conceive any of your correspondents better fitted to instruct the practical farmer, than the person who writes under that name. If he is acquainted with the culture of carrots, let me request him to detail it minutely; as likewise the appropriation of the crop.

I am, Sir, your most obedient servant,

Banks of Clyde. G.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

SIR,

ENCOURAGED by the reception formerly extended to my communication on the subject of Diseases of Sheep, I enclose a translation of a memoir on the proper regimen for sheep, by Professor Daubenton, successor to Buffon in the chair of natural history at Paris. It displays facts unobserved, or at least not generally recorded by either preceding or subsequent writers; and the reasonings appear, for the most part, conclusive. In being submitted to an enlightened tenantry, it may be found of no limited utility in leading them to remark those circumstances which, though not obscure, are not generally noted; but, when carefully recorded, may serve to realize all those expectations which a general comparison of opinions will naturally encourage.

I am, Sir, your obedient humble servant,

London. J. A.

Translation of a Memoir on the proper Regimen for Sheep. Read at the Meeting of the Royal Medical Society of Paris, by Professor Daubenton.

A GOOD regimen is necessary to the preservation of the health of sheep: hence, too, one of the best means of curing their disorders. Attention should be paid to the choice and quality of food placed in the rack, as well as to that which they crop in the fields; because from such is derived their sole nourishment in bad seasons; and because the most succulent pasturage is the most dangerous.

Tares,

Tares, trefoil, lucern, clover, and all those grasses equally relishing to sheep, and favourable to health, may prove noxious, if taken in too great quantity. The air which they engender swells their greatest stomach like a balloon; the tension obstructs rumination; and the increase of the size of this stomach compresses the large vessels; stops the circulation of the blood; and causes death, if speedy assistance be not given to facilitate the evacuation of the condensed air, and the passage of blood in the large vessels.

The richer and more succulent the pasture is, the more should the shepherd be distrustful of it. To such he should drive his flock only when they are already partly satisfied, suffering them to remain there but a short time. Grasses, hurtful by their bad qualities, are much less to be feared: sheep do not eat of them, although pressed by hunger. Of this I have to offer some convincing proofs.

In a small space, formed by four hurdles, I enclosed two sheep;—for these animals are so disposed to herd together in numbers, that, if a sheep find itself alone, it is always restless, and endeavours to join company. I caused to be placed successively in the rack, for the two sheep confined within the small space, plants of a noxious quality, or supposed to be so, such as euphorbiums, bryony, ranunculus sceleratus, tuberous ranunculus and many others. The euphorbium and bryony remained untasted in the rack from morning till night. The sceleratus and tuberous ranunculuses, on the other hand, were devoured with eagerness. During eight days, only one of these plants was given as their sole nourishment; and every day water was brought them, of which they drank very little, or refused to drink; which evidently proves, that these plants do not affect sheep, although very bitter,—the tubercles of the tuberous ranunculus especially so. These proofs appear to me decisive:—since a sheep passes a whole day without eating, and offers not to touch a particular plant in his rack, he will never eat this plant in the fields, where others more to his taste are to be found. One plant which has been the sole food of a sheep for eight days, without any apparent bad effect, is still less an object of suspicion in the fields; for we do not find that sheep prefer it always to the other plants which they there find.

Shepherds, it appears, have little to fear as to the regimen of sheep in a good pasture, except the too great quantity of succulent food which they may devour; but the fodder given them in the racks should be carefully attended to.

Sheep become disgusted with their provender when it has contracted a taste or a smell disagreeable to them. Thus, hay suffered

fered to grow rusty in the fields, heated or grown mouldy in lofts, exposed to the exhalations of dung, or tainted by rats, is bad aliment, causing stronger ground for apprehension, when not quite so much spoiled as to be absolutely rejected by the sheep, but sufficient only to prevent them from taking a proper quantity. In the latter case, some do not think it necessary to supply them with better food, although they perceive that they eat less than if it were in good condition. They are not aware, perhaps, that sheep quickly perish, and are exposed to many distempers when they do not take a proper quantity of food. It is then that the animal languishes, becomes scabby; and the best counteracting remedies cannot avail, so long as the cause remains. The wool takes a bad growth; the blood-vessels, which, in a healthy state, were of a lively red colour on the white of the eye, grow pale; and serious and mortal diseases approach, if not prevented by strengthening the sheep by a supply of better fodder.

Sheep require abundance of food, particularly during their three first years: this is requisite, not only for their subsistence, but also for their due growth, and the production of suet; which is peculiar to these animals, and which contributes much to the good quality of the wool.

When the grass of the pasture, or the fodder of the rack, are not in sufficient quantity to furnish nourishment to all the sheep of the flock, the more vigorous outdo the weaker in the fields, and crop the best grass, or drive them from the rack, greedily engrossing the fodder to themselves. Thus, those sheep already enfeebled with a bad constitution, or the seeds of some distemper, languish in want of provision; they daily decay; they lose their wool; and soon exhibit symptoms of many diseases, and chiefly of that called the *rot*. All these evils might be prevented, by giving a daily supply of food to the sheep in want of it. These may be known at night by the state of the belly, which will be found not so much swelled as it ought to be; but this is a doubtful and precarious sign, when only a small quantity has been wanting in the day. Even such trifling deficiency, however, is sufficient to diminish the quantity of milk in ewes, and to stint the growth of lambs. It is extremely hurtful when it occurs repeatedly, and may be almost always dreaded in countries where the pasture or provision is not abundant. It is requisite, then, to know how to proportion the number of sheep in a flock, to the quantity of food which can be furnished them. This is an essential point in the regimen of these animals. But what rule are we to follow, in order not to be deceived in this calculation, and consequently to maintain as many sheep as can be well fed? I have endeavoured to solve this problem, which appeared

to

to me of no ſmall importance to the landed proprietor, to agriculturiſts, and, in general, to the proſperity of manufactures and of commerce.

I confined in a ſmall ſpace, two ſheep, about twenty inches high (the height of moſt woolled animals in France). By way of experiment, I cauſed the ſheep to be fed for eight days ſolely upon graſs newly cut, and weighed, before being placed in their rack. Care was taken to pick up, and replace in it, all that the ſheep let fall, and to weigh that which they would not eat in conſequence of its being too tough, or becauſe it poſſeſſed ſome bad quality. From this trial, frequently repeated, it appeared that a ſheep of middle ſtature eats about eight pounds of graſs in a day. The ſame experiments, conducted with the ſame preciſion, in regard to the fodders of hay or of ſtraw, have proved, that a ſheep of middle height likewiſe eats daily two pounds of hay, or two pounds and a half of ſtraw.

In order to aſcertain how many pounds of grass compose one pound of hay, I caused the grass to be weighed as soon as cut: it was then spread on cloths exposed to the sun, that none might be lost, though, at the same time, well dried. Being thus converted into hay, I found its weight reduced to one fourth; eight pounds of grass had given only two pounds of hay.

Agriculturists know how many cart-loads, or trusses, a field will produce; therefore, they may judge how many sheep it can maintain in hay or in grass. They have a rule, then, for proportioning the number of their sheep to the quantity of pasture and of fodder with which they can supply them.

Having determined the quantity of solid food essential to the proper regimen of the woolled kind, I made other experiments upon these animals, with a view to ascertain the time at which they should drink.

It is well known, that they seldom drink when fed upon fresh grass, but are in want of water when they have only dry meat. Different opinions are pursued as to the proper time for watering them. In some countries, they are taken to water once or twice every day; in others, not for one, two, three, four, and even five days. By the following experiments, I have endeavoured to ascertain which of all these modes, so different from each other, is entitled to preference.

I shut up in a stable, in the depth of winter, a small flock, of which all the sheep were marked with a number. They were kept night and day, without being suffered to quit it, and fed with a mixture of straw and hay, without any other aliment. Each day, a shepherd carried in his arms, successively, some sheep out of the stable to let them drink, in my presence, out of

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a vessel, gauged at different heights; and then took them back into the stable, when they had either drank, or refused to drink.

By this method, I knew how much water the sheep had taken, when presented with it once, twice, or thrice each day, or only once in two, three, four, or five days.

Most of the sheep in this little flock passed a month in the stable without drinking. Their appetite was always the same; and they experienced no other inconvenience than that of thirst, of which they gave evident proof, by running to lick the moist lips of those carried back to the stable, on return from drinking. The results of these experiments, which I cannot here detail, led me to conclude, that sheep, with no other nourishment than dry hay, and within reach of water, could pass days without drinking; but they would take a greater quantity of water the following day, than if they had drank the evening before. This quantity increases to a certain degree, if they have been deprived of water for many days together. They are then tormented with thirst, for they are eager to get a drop of water; and, if they could find it in abundance, they would drink too plentifully for their temperament, subject as they are to effusions of serosity, which produce mortal hydatides in the brain, and the rot, a disease no less fatal.

The best plan is, to drive the flock every day to the pond, and to make it pass slowly, without stopping there, when it will be found, that the only sheep that drink will really want to drink. In countries where water is scarce, it frequently happens that the pond is far distant, and the flock cannot be driven to it without being fatigued. In this case, they may pass many days without drinking; but, when fed solely on dry meat, it must not be delayed too long. This aliment differs much from fresh grass, in consequence of the loss of moisture by drying; yet sheep take daily the same quantity of solid food, whether in grass or in hay. In the experiments before mentioned, I found their appetite perfectly equal; for they eat eight pounds of grass, or two corresponding pounds of hay, which I found to be the product of eight pounds of grass. The evaporation carried on during the making of the hay, takes off three fourths of the substance of grass in fluid particles. Thus, the sheep which eats two pounds of hay, is deprived of six pounds of liquid aliment, which it would have enjoyed by eating eight pounds of grass. It supplies a part of this deficiency by drinking about three pounds of water, when fed upon hay; but this water is not in sufficient quantity, and possesses not the same quality as the liquid of the grass evaporated in drying.

There can be no doubt, that this difference in regimen is pro-

ductive of bad effects. I shall mention some proofs of it, which are indeed too evident and too frequent.

In countries where the snow remains upon the ground for one or two months, the cattle are reduced to dry fodder, so long as it lasts: then the weaker sheep, and chiefly the lambs, the sheep of the second year, the pregnant ewes, and those in milk, languish and drop off. Shepherds denote this miserable state by saying, they *melt their fat*. They certainly grow very lean, and fall off in great numbers.

I have often reflected upon the cause of this evil, and the means of preventing it. After having prosecuted every inquiry I could think of, it appeared to me to arise solely from a change of diet too suddenly effected. In one day, the sheep are reduced from eight pounds of grass to about two pounds of dry fodder, and three pounds of water. They are thus deprived, therefore, all at once, of three eighths of their wonted nourishment; and these three eighths composed the half of the fluid part of it.

According to my experience of the quantity of water taken by sheep, it appears, that their drink can supply only one half of the liquid which grass contains more than hay. It would be dangerous to excite them to drink a greater quantity of water, because they are very subject to infiltrations. We must therefore endeavour to supply them with at least a small quantity of fresh food every day, in order to correct the bad effects resulting from dry meat. The most obvious of these bad effects appears in the third stomach, composed in the interior of a great number of membranous folds, detached from each other, although it is only from eight to ten inches in circumference when filled with air. During rumination, the food passes from the throat into this third stomach, and spreads amongst all these folds. I have there found it very frequently parched, and almost withered, in many sheep which I have dissected.

This aliment, after being ruminated, receives, in the third stomach of the sheep, and of other animals that chew the cud, a preparation for digestion, which latter takes place only in the fourth stomach. The aliment is dry in the third stomach, not only when the animal is fed solely upon dry meat, which has not furnished sufficient liquid, but also when attacked by some disease causing too great heat, and, consequently, too great evaporation of the liquids necessary to digestion. In these two cases, bad digestion, and the evils attending it, may be prevented, by giving some green food at least once a day. At all times when the ground is not covered with snow, sheep find upon it sufficient fresh food to render it unnecessary to give them any in the rack with their dry meat, in a bad season. I have often stopped in the midst of

a flock, in fields covered with snow, where no grass whatever was to be seen. The sheep, however, having their eyes nearer to the ground, perceived the points of some leaves, and scratched with their feet to find more of the plant: they then seized it with their teeth, and sometimes pulled up the roots along with the leaves. But when the snow entirely covers the ground to a certain thickness, there is no other resource than in the plants which may be high enough to enable the sheep easily to remove the snow which covers them.

There are some kinds of cabbages, such as the *fringed cabbage*, which are very tall: they resist the frost, and their leaves contain much juice. These form an indifferent article of food for sheep in times when they are not reduced to dry meat; but, if confined to this aliment, a few of the leaves of these plants will be found sufficient to obviate its prejudicial effects.

It is difficult to have a quantity of these cabbages sufficient for numerous flocks. They require to be sown, transplanted, and watered for many days; and this culture must be repeated every year, which is too tedious and expensive for the husbandman.

Whatever advantages may attend the use of cabbage as a diet for sheep, I would not recommend this vegetable as fodder, had I not met with a species of cabbage which may be reared without sowing, without transplanting or watering. It is equally unknown to the naturalist and the agriculturist. Like the fringed cabbage, it resists the frost; and, for cattle, is preferable to it, being very easily cultivated. It may be propagated by cuttings; and it is only necessary to slip off its lateral branches, which are numerous, and plant them in the earth, to have, in a short time, new plants over the whole extent of a well cultivated field. The leaves are less than those of other cabbages; but the juice they contain is as abundant: they are equally good food for the shepherd and his flock. Some handfuls of these leaves given to a sheep will correct the bad effects of dry food.

The regimen of sheep is one of the most important branches of veterinary medicine. This science is to be established only by well-founded experience, with observation and experiment frequently repeated on these animals. An intimate acquaintance with them in their natural state is necessary, before attempting to cure their diseases.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

SIR,

I AM lately arrived in this ancient kingdom of Scotland, and have uncommon pleasure in reading your useful and instructing

 publication;

publication; but with your own observations I am particularly pleased. Indeed, where I do not meet with some of them on the sentiments of others, I am somewhat disappointed. Long, Sir, may you live to promote useful knowledge, and to instruct divided farmers; for I candidly confess, that much as I have conversed with farmers, both in England and Scotland, I seldom find two of them professionally of one mind.

The strictures on that notorious publication, 'Hints to Agriculturists, by William Dickenson, Esq.' are perfectly just, and replete with information, even to the weakest capacity; and, no doubt, their appearance in public will prevent much unnecessary trouble to yourself. From the profound knowledge of that gentleman in the art of chemistry, as well as pharmacy, I cannot help expressing a curiosity to see his publication; conscious that, if it did me no good, it should do me no harm, which probably it might to others. It is evident to me, Mr Conductor, that when William was studying this masterly performance, there must have been an equivocal generation of ideas floating confusedly in his brain. 'A little learning is a dangerous thing—Drink deep, or taste not the Castalian stream.' But Mr Dickenson is not the only chemical professor in your Magazine: I can discern a number of others, some of whom have as little occasion for a trumpeter as he. Nay, some of your correspondents go so far as to tell us, that the race of practical farmers, now-a-days, are so highly educated, and so well versed in the principles of chemistry and pharmacy, &c. that, were our ancestors to rise from their graves, it would only be to show the world their consummate ignorance, compared with the erudition of our modern gentlemen agriculturists. How these gentlemen come so very soon to be connoisseurs in Greek, Latin, chemistry, pharmacy, &c. is to me not a little astonishing. After a classical education, and with abilities like other men, I had the good fortune to study chemistry three sessions successively under that very able philosopher Dr Joseph Black, then Professor of that art in the University of Edinburgh; and, even after that period, I found but too many intricacies. Chemistry is an art not easily attained: and Greek and Latin are languages that require long study and much attention, and are primarily and peculiarly adapted to the study of that art. The qualifications of your correspondent Sir George Mackenzie as a chemist, I am ignorant of; but make no doubt of the Baronet's abilities. Those of Mr Low of Annfield are better known; nor do I believe that gentleman will publicly claim much acquaintance with that profession. By the by, I observe a clerical character, in one of your numbers, much

much employed in analyzing lime-craigs. In my humble opinion, his reverence would be much better employed in analyzing the Old and New Testament: in this, however, he may take his mind.

I observe in your Magazine, vol. VII., a letter from a Fife-shire Ploughman, as he styles himself; and, excepting from my old friend Pol-Œconomicus, a better wrote letter is not to be found in all your publication, nor one that contains more sterling sense. He very justly observes the impropriety of Latin phrases, as they are not understood by one in fifty of your readers; and humbly informs us, that it never was in his master's power to enlighten his mind in the knowledge even of the rudiments of the Latin tongue, notwithstanding the many severe drubbings he got from him. I therefore venture to say, and I dare to say the Fife-shire Ploughman will join me in affirming, that although these arts, languages, and scientific or rather technical terms were even acquired by all the operative farmers in Great Britain, not one would reap the least benefit from any of them.

One of your correspondents (*Coquetus* by name), speaking of the improvement of land, and the effect that streightening ridges hath on the quality of the grain, tells you he knows not how to account for it, nor is he concerned to inquire: it is sufficient for him to be assured, from experience, that it really is the case.

The same opinion seems to have influenced the reviewer of Mr Findlater's Survey of the County of Peebles, who acknowledges, that inquiries about knowledge of the agents of vegetation cannot benefit the husbandman, though they may, on many occasions, lead him astray. He goes still further, and assures us, that if the earth is enriched with generous manures,—if superfluous water is removed,—if noxious weeds are destroyed, and shelter afforded,—then all that man is capable of executing is performed; and adds, that, in the knowledge of these things, the art if not the science of agriculture may be said to consist; and that the enlightened farmer, who acts according to these principles, knows more of real agriculture than the most scientific philosopher.

I now appeal to yourself, Mr Conductor, and beg to know, whether the above knowledge may or may not be acquired without the acquaintance of Greek and Latin, and a dabbling in chemistry? Clean land, properly dunged, will, I believe, seldom fail of producing a good crop; and there are few farmers but know good dung from bad; and that is sufficient. Abstract philosophy, &c. the farmer hath no manner of concern with; or, if he has, I much fear he will soon be left in the labyrinth of uncertainty, like a young seaman of my acquaintance, who boasted of his nautical

abilities, from a superior knowledge in the theory of navigation; but behold him on shipboard, in a tempest, startled at the most trifling difficulty, while honest *Jack* saw nothing to discommode him.

Now, as to those sons of the plough, (I mean such as may rent a farm from 100*l.* to 1000*l. per annum*), I can see no real advantage accruing to them from an education beyond the bounds of good English, writing and arithmetic; and I ask every mind unprejudiced, if any more is necessary. However, should any of your enlightened knights of the *flail* deem this too limited for their capacities, I would recommend to them the study of anatomy;—to know the number of bones in a horse or a cow;—to discriminate between the skeleton of a cock and a hen;—the action and counteraction of the different muscles would be of much importance in determining the depth of the plough-furrow;—and, above all things, a thorough knowledge of the nervous and sanguiferous system, in order to ascertain the precise quantity of oats to each horse, conform to his age, flow of animal spirits, impetus of blood, &c. &c. I need not add the benefit that would accrue from a stop-watch. With these accomplishments, which he might acquire in a few days, he would appear as much qualified in surgery, as many of your correspondents are in the art of chemistry.

I have already said, that of late I had an opportunity of visiting and conversing with many of the farmers in Scotland, particularly those to the north of the river Forth; and, in general, found them rather illiterate than otherwise. Their language is ungrammatical—not syntax; their writing by no means correct: neither do many of them pretend to more than their mother tongue. I speak my mind without reserve, being influenced by no motive either for or against those useful men,—men, Mr Conductor, whom I as much respect as you do yourself: And why may they not be good men; good christians; good farmers; natural philosophers; and, I will add, to their honour, good *soldiers*—without the knowledge of Greek, Latin, French and chemistry, botany, the materia medica, and the Devil knows what?

In my juvenile days, I well recollect of a gentleman, a son of the church, who vaunted so much on his mode of cropping, and the enormous returns he had from two or three acres of rich glebe land, that he had ambition enough to make purchase of a little farm,—nothing doubting, from his abilities in agriculture, but it would bring forth an hundred fold. For a number of years did this great master of arts struggle with his farm; till, being obliged

liged to borrow money to pay the last instalment, and finding it a losing concern, he was obliged to let it; which was only effected after publishing it in almost every newspaper, and being for nearly one whole year upon half of the church-doors in the county.

Before I conclude, let me observe, that, on a tour through a certain part of Scotland last summer, with an acquaintance, we alighted at the house of a friend; and, after refreshing ourselves, took a walk round his farm. It was the beginning of harvest; and I was delighted in viewing his excellent crop;—not one half acre had misgiven;—wheat, barley, oats, all so full, as to be inclining to lye over. He assured us, that although the soil was not of best quality, yet he seldom or ever missed a crop. His mode of cropping I really do not well recollect; but he was an advocate in supporting the fallow, turnip and liming plan. He seemed to be an intelligent man; and, we were of opinion, a real systematic agriculturist. My acquaintance informed me, that he was an illiterate man; and, not many years ago, he had known him in the capacity of a farmer's servant; but that, from rigid economy, conjoined with the industry of an excellent wife, they had brought up a numerous family, and at last leased this beautiful farm, where every thing seemed to prosper and flourish under them.

Sine industria nemo vir magnus unquam fuit. I humbly beg pardon for this trespass, which I did not intend: Believe me, you shall have no more of my Latin.

Adjoining to this farm was another excellent one, possessed by a very high-spirited young gentleman, who, to my certain knowledge, had obtained an education inferior to none in Scotland. He was what we may call a finished scholar; and had turned to be husbandman from motives which I am not at liberty to mention. Be that as it may, on our passing, he was behind his reapers in the field, amusing himself with a large *pussy* in his arms; the labourers being employed in cutting down a field of oats, of which I can be well justified in saying, that one cart could with ease have brought home to the barn-yard upwards of one acre at once, thistles excepted, of which there was an abundant crop; and, at that season, I have no doubt, would multiply sufficiently by another year, if not prevented.

Thus have I endeavoured to prove the superfluity of a learned education to practical agriculturists, beyond the limits of English, writing and arithmetic; not to mention the loss of time, which undoubtedly might be employed to much better purpose.

Should any of those hints meet with your approbation, I shall consider myself highly rewarded; and probably you may not be

long of hearing from me on another subject. Wishing you every success, I am, Sir, your respectful humble servant,

July 1808. TRANSATLANTICUS.

FOR THE FARMER'S MAGAZINE.

On Horse Rakes for gathering Hay.

THE attention of a great proportion of every circle in society has been, of late years, turned to the improvements of agriculture, and to the invention of new machinery and novel implements, for facilitating and simplifying the various operations connected with rural economy. The simplicity and probable utility of the following agricultural instrument, may be found of much importance to the farming interest.

It is well known to all agriculturists, that light bodies, such as hay, are gathered together at a great expense and labour; and that frequently the crop is lost for want of hands to secure it against heavy rains; which was severely felt by the loss of immense quantities of hay last season. The writer of this proposes, as a substitute for manual raking, that the same shall be performed by a horse, attended by a lad of fifteen or sixteen years of age. A rake is to be constructed, suitable to the strength of the horse; and there seems no difficulty at all in the projection of an instrument, which will gather more hay, and in a more perfect manner, in a given time, than any dozen of hands employed in the common way.

The form of the instrument which it is believed would answer the purpose, to be of the segment of a circle, forty-five inches long, of cast metal, with wooden teeth of a sufficient length, perhaps six inches long; or the whole to be made of wood, in the same manner and form—only a sufficient weight, in the latter case, to be fixed above the head of the rake, so as it may be proportioned to the operative execution of the instrument, for clearing and cleaning the hay in a perfect manner as the horse moves forward. Whenever the instrument has a quantity equal to its power, it is only necessary for the lad in attendance to lift it, and the horse moves on as before.

The projector acknowledges, that owing to the novelty of the instrument, it may be found imperfect and objectionable; but the form can be constructed in such a variety of ways, and with such simplicity and cheapness, as to answer the purpose to a certainty. For instance, two or three rakes may be chained together,—one moving to the right, another to the left, and a third in the middle, and the horse drawing the whole the same as one.

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These ideas on the utility and substitution of animal for manual labour in the hay harvest, is a subject of importance and economy. There is not the smallest doubt but the ingenuity of some of your readers will improve on the rough sketch suggested; and instruct, by experimental procedure, whether or not it will be attended with the advantages anticipated.

I entertain a notion that an iron plough would prove much superior to any other; for, if made equally light, and properly constructed, it would keep the ground better, and be easier managed by the solidity of its component parts, while the upper works would never in the smallest degree be injured by all the varieties of changeable weather. Wood is excessively high, and iron uncommonly low at this period; it is therefore apprehended that the iron plough would not much exceed in price the timber part of the machine now in use, particularly when it is known that iron, in bars of any dimensions, may be had at Wilsontown iron works, at and below 2s. 6d. per stone English.

OSIRIS.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

Remarks on Mr Laurie's Letter on the Depopulation of the Highlands.

SIR, *Glasgow, 22d March,* 1808.

I AM much afraid that the remarks I am now to send you on a paper in your Magazine for February 1808, entitled, 'Hints as to the means of preventing the Depopulation of the Highlands,' may, from their great length, be tiresome to many of your readers. Besides, I am exceedingly averse to occupying so much of the room of your publication, when there must be a great deal of interesting matter pressing for admission from other quarters. The importance, however, of the subject which the essay professes to discuss, and the very full hearing that Mr Laurie has met with from you, will, I trust, be some apology for trespassing so far upon your patience, and that of your readers.

I am not at all pleased with the title of the paper, 'Hints as to the Means of preventing the *Depopulation* of the Highlands.' The word 'depopulation' has a very ugly meaning, and conveys to the mind of the reader the horrible idea of every man, woman and child, in the Highlands, having been turned adrift, naked and starving, to the peltings of a pitiless world. One would imagine, that not a single aboriginal inhabitant had been left to mourn over the fall of that unhappy country; and that their place

place had been filled up by an emigration of equal magnitude from the South. Mr Laurie, however, in traversing the banks of Loch Tay, and other parts of the Highlands, must have had frequent opportunities of remarking a population that would not disgrace many of the more fertile spots of the Lowlands. I am unwilling, therefore, to suppose that this gentleman has either travelled the country with a handkerchief about his eyes, or, what is worse, has had any intention of misrepresenting the real state of the case to the public. I am rather disposed to attribute the inaccuracy of the expression to the circumstance of not having sufficiently attended to its meaning; and that, when he made use of the word 'depopulation,' he had in his eye the idea that is attached to that of 'emigration.' This last effect, we know very well, has taken place in most parts of the Highlands; and we also know that the other has never yet, nor ever will happen, in that or any other quarter of the civilized world. In fairness, too, Mr Laurie should have avoided the use of an expression calculated to throw odium upon a class of people, who, equally the friends of their country, do not contemplate the event of emigrations from the Highlands with the same melancholy presages that he and many others do. It is too much the cry of a party; and we all know, that when the bloodhounds of persecution are once let loose, there is an end to all deliberate and dispassionate discussion.

He says (addressing himself to Sir John Sinclair), 'In common with you, and every real friend of the British empire, I cannot but lament the depopulation that has taken place in the Highlands. I do not allude merely to the numerical loss of population, though this is a thing in itself sufficiently affecting. It is the particular character of the people who are thus expatriated, and the manner in which this takes place, that makes the matter appear to me most affecting. A brave and robust race of men, who have possessed and defended their mountains from time immemorial,—whose hearts burn with the most enthusiastic loyalty,—whose candour, hospitality, good sense, and strict morality, in these degenerate times, exceed every encomium, and who are daily giving proofs of their heroism that challenge the applause of the world;—these men are driven from their dearly beloved native mountains, and compelled to seek a home in distant, perhaps on hostile shores, at a time when the chief want that our country acknowledges, is that of a sufficient number of such brave sons to meet its foes. And all this is done, in order to make room for a few solitary strangers, who bring themselves under obligations to pay their landlords a nominally higher rent for the soil, which the changing circumstances of the country must enable them to discharge; otherwise, from their magnitude,

magnitude, these engagements must remain unfulfilled. To these individuals, hundreds of families with claims on their landlord, which, to the ear of equity and humanity, would appear irresistible, are, by that landlord, for the sake of a petty, apparent pecuniary advantage, obliged to give way. Yet this advantage, whether real or imaginary, is the only benefit that either the landlord or the country can possibly receive for the inestimable and unascertained sacrifices that are thus made. We read with horror of the tyranny of William Rufus, who depopulated a district for selfish purposes, in days of darkness and cruelty; but what is this to the crime of depopulating ten counties, in an age of high civilization, under every aggravating circumstance, and depriving the kingdom of those stamina which constitute its greatness?'

I can assure Mr Laurie, that I am as warm a friend to the British empire as he, or Sir John Sinclair, or any other Highlandman can possibly be. This gentleman would insinuate, that all who do not think with him upon the subject of Highland emigration, are enemies to their country; because, if all the real friends lament that circumstance, those who do not, must be inimical to its true interests. I do not know if Mr Laurie ever proceeded in a college education so far as the logic class; but if he did, he has either now totally forgot all that he then imbibed, or, like many of his contemporaries, learnt nothing at all. The syllogism of which he has attempted an outline, is as lame and miserable as ever dropt from the pen of the merest tyro in the art of reasoning. For my own part, I am charitable enough to believe, that both those who agree with, and those who differ from me, upon this national question, are equally animated by a sincere love of their country; and, in like manner, Mr Laurie ought to have opened his paper with this liberal sentiment. Although, however, both of us wish well to our native soil, I am of opinion, that the measures recommended by our mutual patriotism, are not equally well calculated to further its prosperity. I have not the smallest hesitation in saying, that the views which are entertained by the party of whom I profess to be an humble follower, are the best suited to promote the welfare of the Highlands in particular, and of Great Britain in general. It would be premature, however, to enter upon the discussion of this question at present, as it will be treated of by and by in its proper place. I throw out these observations, merely to put the reader upon his guard against believing that all those who fail to lament the late emigrations from the North, are, of necessity, enemies to their country.

The picture which this gentleman has drawn of the loss sustained

tained by the nation, in consequence of the emigration of a part of its inhabitants, and the hardships of the case of these poor people, is greatly overcharged. The canvas upon which he has been at work, is daubed in every possible way to produce stage effect, but without adherence to reality, in all the touches of the pencil. I believe the Highlanders to be brave and robust, like all other inhabitants of a cold and upland country. No doubt, they have been in possession of their bleak and barren mountains from the beginning of time; but I cannot give them much credit for defending a property, which, from its poverty, could attract so little of the cupidity of invaders. Their loyalty may be unquestionable; but it is the silly humiliation of a vassal to his feudal superior, not the enlightened homage which a sovereign receives from free men. I have myself seen a little of the Highlands; but I was not so fortunate as to meet with the candour which this gentleman represents to be one of the characteristics of its inhabitants. There is something in the moral and political condition of the Highlander, that, in my humble opinion, must, as long as that state exists, forbid the exercise of that virtue. It is a plant which grows only in a good soil, and under a happy sky. The moral qualities of the individual must be of a higher kind, and the political state of the society in which he lives further advanced towards a state of freedom, than what at present exists in the Highlands, before its inhabitants can be remarkable for their candour. The poor miserable wretch who pines on the solitary island of Iona, is by much too debased in his moral and political condition, even to exercise a virtue that would wither and die in a much better region. Savages have always been hospitable to those who have had the misfortune or the curiosity to visit them, and, of course, the Highlanders also. I certainly would not withhold my praise altogether from the motive which opens the door of the Highlander to strangers; but when the face of a civilized person must be such a treat to the inhabitants of that distant world, I cannot help thinking that there is a little selfishness in this display of hospitality. As the Highlands come to be better peopled, and the face of a stranger less a rarity, this virtue will grow colder and colder; although the people may, at same time, be as virtuous in all other respects, as ever they were in the rudest periods. I should be sorry to say any thing disrespectful of the Highlanders; but I am apt to think, that Mr Laurie, from his anxiety to establish the good sense of these people, is very deficient in that necessary article. How is it possible, with all the obstinate adherence to old prejudices and errors, which a state of ignorance never fails to engender, and the very few opportunities within their reach of improving

ing their intellectual powers, that they can be noted for a qualification which people in much more favourable situations seldom possess? Their morality may, for aught I know, be strict; but, having few temptations to withstand, there is but little room for the virtue of self-denial. A man cannot well be a thief where there is nothing to steal; and the chastity of a female is in little danger among mountains, where want and cold benumb all the softer feelings of the man. But to be virtuous amidst all the luxuries and temptations of London or Paris, would, I am afraid, be too much even for the sluggish blood of a Highlander. Where morality is the effect of local accident, as it happens to be in the Highlands, it can derive but little praise from those who are in the habit of taking an enlightened view of the subject. The heroism of the Highlanders has been trumpeted in the ears of the public ever since the commencement of the present war; and the distinguished appearances they made on the sands of Egypt and the plains of Maida are proofs of the fact. But why, in the name of Justice, cry up perpetually the bravery of one particular set of men, and, in the fulness of Highland pride, be silent upon the equal courage of other corps? There is, moreover, but little policy in all this; for, had not Sir John Sinclair most indiscreetly asserted, that the colours of the Invincibles were taken by a namesake serjeant of the 42d, the glory would not have been contested by a private in a foreign regiment. It is unwise sometimes to push an argument too far—to be overgreedy of praise, as well as of money. But, be all these things as they may, what are they to the point at issue,—the improvement of the Highlands? The inhabitants of that country may be brave, loyal, possessed of candour, good sense and hospitality; but still these facts go not a single inch towards proving that the country suffers more by their emigration than by the introduction of their southern neighbours. I may admit the truth of every one of these assertions; but they are totally irrelevant to the question which Mr Laurie professes to discuss. This mode of treating the matter is like trying a thief for murder: the culprit may no doubt be hanged with great propriety for stealing; but it would be rather irregular to take away his life for the alleged commission of the greater crime.

In describing the loss which the country (he ought to have said the Highlands) suffers by the emigration of these people, Mr Laurie exhausts all the stores of his fertile imagination. He does not merely colour too much: the picture is not simply a favourable likeness;—in many respects, it does not at all resemble the original. No man will be hardy enough to deny the emigration of

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the Highlanders to be injurious to the country; and could they have been retained, consistently with the present plans of improvement, they would have been permitted to remain. But there is a wonderful difference between a partial and a total loss; and this gentleman would fain make his readers believe, that the country loses every thing, and gains nothing, by the emigration of these people. If Mr Laurie has exaggerated the injury sustained by this change, he fritters away to nothing the advantages which may arise to the Highlands by the introduction of a new set of people. By his account, the Highlands are to get, in return for the loss of their total population, only a few solitary strangers; and the landlords are to get merely a higher nominal rent for the ground that has been abandoned. Now, does Mr Laurie call this fair and honest, in argument; or can a reader put the smallest faith in the reasoning or facts of a man who pays so little regard to truth and candour? He must be aware of the hopes which are entertained by many enlightened men, of the great advantages that are likely to accrue to the Highlands, and to the country at large, from the present plans of improvement; and though he may be at liberty to consider them as visionary, he ought to have been candid enough to have stated these views to the reader. With many others, in whose opinion I am proud to coincide, I apprehend that the Highlands are more likely to be brought into a state of high and rapid improvement by southern industry, than by the pitiful exertions of the aboriginal inhabitants. It is remarkable, that civilization has uniformly proceeded from south to north, and barbarism from north to south. Life has always gone the one way, and death the other. In these solitary strangers, as they are contemptuously called, I see the oil that is to pour balm upon a helpless country;—the power that is to elevate it from a state of vile and stupid barbarism, to a pitch of great wealth and prosperity. The means that are employed to accomplish so great an end, are apparently trifling; but capital and knowledge, when properly directed, are of themselves sufficient to change the face of the world. As poverty and ignorance come to be banished from the Highlands, and capital and knowledge spread themselves over that country, its improvement will proceed exactly in the *ratio* that the negative bears to the positive quality. I might expatiate upon this subject at great length, were it not taking up the room of your excellent Magazine; but, as a single fact is better than a thousand arguments, I have just to refer Mr Laurie, and others of his persuasion, to the counties of East Lothian and Berwick, as a living and practical illustration of the truth of the theory. Why will this gentleman say, that the new incomers are to pay their landlords merely a nominal higher rent,

rent, when it is notorious that the rental of these proprietors has been in many cases tripled, and even in some instances quadrupled? Is this advance merely nominal, or is there no difference between the sum of 300*l.* and that of 1200*l.*? This is worse than mere quibbling;—it is a downright misrepresentation of facts. Mr Laurie, or, what is more to the purpose, the Highland proprietors, need not be afraid of the new tenants being unable to fulfil their engagements. Their greater capital and knowledge will enable them to perform what, to the silly and weak mind of this gentleman, may appear impossible. The advantages which I have stated as likely to arise to the Highlands from the introduction into it of superior knowledge and capital, he affects to call imaginary; and the injury which it will sustain by the emigration of ignorance and poverty, most serious and alarming. It is very singular to hear a man capable of spelling, or of putting two words together, committing such drivelling nonsense to paper. It is really the first time I ever heard that a country was to be ruined by capital and knowledge; and, on the other hand, improved by ignorance and want. Money, we all know, makes money; but *ex nihilo nihil fit*. What will a reader think of such arguments, or of the cause which they pretend to uphold?

'I know' (says he) 'that the old system of farming in the Highlands was injurious to the landlord, as well as to the tenant; and that the Highlanders were not formerly prone to change their habits: but I am also satisfied, that the old system was not only capable of melioration, and the Highlander as much qualified to reform his habits as any other man, in so far as they were really bad, but that the system formerly established, when accelerated, and the Highlander, when informed and disciplined, are the only means by which the Highlands can ever be made useful to the proprietors, and to the country at large; and that the position in which these were formerly placed, was that which prepared all parties best for the exigencies arising from the changing circumstances of the country.'

I am glad to find that this gentleman considers the old system of farming in the Highlands as injurious both to landlord and tenant; and that, in former times, the inhabitants themselves were averse to any alteration in their old habits. He has begun now to see things in a proper point of view; and by and by, I make not the smallest doubt but he will be sensible of the error of his present ways. I suspect much, however, that, had not the sorry agriculture of these people been exposed to public ridicule, this gentleman would, at this very moment, have been an admirer of the miserable farming of that country. He is such a blind lover, that he is not capable of seeing, even with the assist-

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ance of a pair of spectacles, a wart upon the nose of his mistress. A change of habits is repugnant to man in a savage state: and Mr Laurie may be assured, that the Highlander would at this day have been clinging with as much fervour to old prejudices as ever, were it not for the introduction into the country of their Southern neighbours. A competition has taken place between the people of the south and north for the future occupation of the Highlands; and the latter have discovered, when too late, that they must be open to every change for the better, or give way to strangers. Truly this gentleman is most candid in admitting the old system to be capable of melioration; and that the Highlanders themselves are not perfect creatures. I cannot, however, agree with him in thinking these people as well qualified to reform bad habits as any other; nor can I consider the old system, when a little brushed up, and the Highlander himself when better informed, to be the only means of making that part of the kingdom useful to the proprietors and the public at large. It is considered, I believe, by moralists, to be no easy matter to turn over a new leaf; and that so important a change as the reformation of bad habits cannot be effected, except in very favourable circumstances. A man must be in some measure enlightened, before he can be sensible of his imperfections; and still more so, before he can set rightly to work about reforming them. I leave it with your readers to determine with themselves, how far the Highlander, with all the obstinate attachment to old prejudices, which ignorance never fails to engender, is as competent to the task of self-reformation as others with better opportunities of being sensible of their imperfections, and of the means by which they may be amended. I very freely admit, that, if the old system be ameliorated *ad infinitum*, and the native himself as well informed as his more southern neighbour, the country may then be rendered useful to individuals and to the public. But how are these things to be accomplished, but by the introduction of another and a better people from the South? If, into the old stale leaven of the Highlands, be poured a little of the low country spirit, the mass will become enlivened. It will be like infusing new life into a breathless corpse.

'There can, I think, (says he) be no doubt but that some new change in the appropriation of lands in the Highlands will soon take place. The quantity of sheep and cattle that can be managed with care and with advantage by one farmer and his retainers, generally natives of a more genial soil, begins now to appear much smaller than calculators expected. Besides this, the advantage of joining the culture of potatoes, turnips, and other roots, to the breeding system, and the opportunity which many improveable, but now neglected spots, afford of doing this with

a profitable rotation of peas, oats, barley and grass, are now become more manifest, and will tend still more to diminish the size of farms, and also to make a considerable addition of hands necessary for the country, provided, however, that the course of improvement is not arrested. When the Highlanders have been expelled, whence will this want of hands be supplied? Will Lowlanders or Irishmen leave easy and productive employments, in a flourishing country suited to their habits, and travel over some hundred miles of rude districts for work, where they must submit to hardships and privations that are intolerable to them? Would they do all this for the scanty recompense that the Highlander would accept of for his labour? Would they, after all, be sufficiently robust for the hardships that behoved to be imposed on them? Such expectations as these are altogether chimerical. Either there must be no further improvement in the Highlands, after the antient race have left it, or a vast expense must be incurred by the landlord, before these improvements can be effected, in preparing accommodations and conveniences for his expected assistants. These expenses would soon be found to exceed the whole amount of that *bonus* he had received from his new incomer; and it might probably happen, after a variety of experiments begun and reiterated, and a great deal of expense, that the presence of the Highlander alone could accomplish his object.'

In passing from a state of slavery to that of freedom, nations have frequently overshot the mark; and, in like manner, Highland proprietors, in their ardour for amelioration, may perhaps push matters a little too far. It is impossible, in the infancy of improvement, exactly to hit the proper medium; and, in all probability, these gentlemen will err in the extreme of attempting too much. In that case, another change in the appropriation of land will no doubt take place; and things will at length settle in a proper temperature. The circumstance, however, of their having gone too far, even if it were true, is no argument against going at all; and, upon finding they have erred in this respect, they have only to retrace their steps to a certain extent. Although the change may have been too great, still, that is no valid objection to a change at all. It is very possible that Highland proprietors may have overrated the advantages which they expected, in their too sanguine moments, to arise from the consolidation of small into large farms; but, that they will be benefited by this revolution in agriculture, there cannot be the smallest doubt. The disappointment in that particular never can be so great as to induce them again to relapse into the state of ignorance and barbarism from which they had so lately emerged

Unless, therefore, Mr Laurie can show that the old system was in all respects equal to the new, the latter will still be the favourite, though not so advantageous as was at one time expected. Although I earn only a sixpence, when I flattered myself with a shilling; still I will follow that particular trade in preference to another, in which not a farthing can possibly be made. I am rather disposed to think, that by and by farms will be reduced in point of size, for the reasons stated by that gentleman; and, when that event happens, he need be under no apprehensions of a want of hands to perform the necessary operations. For some time, at least, the present state of things will continue; and if another change be to take place, an additional population will come into the world, from the encouragement given to those already in existence. If the agriculture of the country be improving, he may rest assured that the population will augment exactly in proportion to the demand there is for labourers. It is true, that people cannot be hatched in an oven like chickens; but neither can these changes, which required the additional number of hands, take place as suddenly and instantaneously. If I be well founded in what I have said, there can be no occasion for any emigration into the Highlands of Lowlanders or Irish. But, at any rate, I do not see the hardships or privations which these people will suffer by holding the plough in the Highlands more than in Lanarkshire; and I cannot figure any difference in delving the ground in the 54th or 60th degree of north latitude. In going to the extreme parts of the north country, they will no doubt have to undergo the fatigue of travelling two or three hundred miles: but I can see no further hardship in the migration; and when the journey is once performed, it is not to do over again. At present, it may be very true, that the wages of the Highlanders are small; and for no other reason, but that their labour is in little demand. When their country, however, comes to be improved, a demand for labourers will necessarily take place; and the Highlander, learning his own value, will cease to work for the trifling hire he has been accustomed to. Nothing depresses the wages of the Highlander but the low state of the country; and, if it should improve, the wages of the labourer will increase, no matter whether he be a Lowlander or native. I cannot comprehend how and in what way the labour of a Highlander should be a whit more severe than that of one in the South. It occurs to me, that following the plough or digging the ground would bring just the same quantity of sweat upon his brow in both places. The Highlands are not unhealthy; and as labourers will work in that part of the island the same number of hours in the day as in this, the fatigue must, in both situations, be the same

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to the individual. Mr Laurie, therefore, need be under no apprehension of a stop being put to the further improvement of the Highlands; or that the landed gentlemen will be put to a great deal of extra expense in making these improvements, on account of the emigration that has lately taken place from that country.

I am yours, &c.

A CONSTANT READER.

(To be continued.)

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

SIR,

THE following short essay on several agricultural subjects lately fell in my way; and, though it appears to be of an ancient date, yet, as much good sense is contained therein, I trust it deserves to be preserved, and, on the whole, may not be unacceptable to your readers. On these accounts, I have used the freedom of transmitting it to you, hoping the trouble given will be readily excused.

I am yours, &c.

A FRIEND TO AGRICULTURE.

The Farmer's Pocket Companion.

Earths.—There are five earths, *viz.* 1st, Sandy.—2d, Clay.—3d, Magnesia.—4th, Earth of allum.—5th, Calcareous earth. The three last are called absorbent earths. The magnesia and earth of allum are seldom found in soils uncombined with an acid substance.

The calcareous earths are *marl* of all sorts, *limestone*, *chalk*, marble; and the earth formed of the bodies of all animals, sometimes called animal earth. Most calcareous earths are supposed to be formed originally from shells.

Sand, clay and water, form within a mere trifle of what we call earth or soil; for any other ingredients that may be therein, are in a mighty small proportion to the sand, clay and water: These are the great component parts, whatever colour or texture the soil may happen to have.

Mucilage.—Mucilage is a substance which is converted into the nourishment of all plants whatsoever: it is formed from the putrefaction of animal or vegetable substances: it is formed also from dung; from dew; or rain-water putrefied. Plants, while their leaves flourish, discharge juices from their roots capable of being converted into a mucilage. The succulent plants, such as peas, beans, turnip, cabbage, &c. yield much matter for mucilage to the ground. Quicklime, and rolling the ground with a heavy roller, destroy numberless insects, which afterwards putrefy, and yield matter for mucilage.

Mucilaginous juices are of two kinds;—one, when diſſolved in water, forms a ſort of jelly, and is an immediate manure: moſt animal ſubſtances are of this ſort. The other kind, diſſolved in water, makes a gummy liquid as ſugar does. This kind muſt putrefy before it becomes a manure: moſt vegetable ſubſtances are of this latter kind.

Putrefaction has two ſtages. The firſt converts animal or vegetable ſubſtances into a mucilage;—the ſecond converts that mucilage into one or more ſpecies of ſalt.

How marl or lime benefit or exhaust land.—Marl, lime, or any other calcareous earth applied to land, acts in this manner.—They haſten the putrefaction of all putreſcible ſubſtances in a ſoil; conſequently, if there be not added at leaſt a proportional quantity of dung, well mixed, containing mucilage, they muſt infallibly exhauſt land; for they convert all the putreſcible matter therein to mucilage, much ſooner than it would be otherwiſe converted. This will at firſt make the land produce much greater crops than uſual, there being ſo much additional food prepared for the plants: but after one, two, or three years at moſt, thoſe heavy crops will have conſumed moſt part, if not all the mucilage; and the little that may remain is converted into ſalts by the ſecond ſtage of putrefaction, as above mentioned; which ſalts, in a little time, are rendered of no effect: or, if they have any effects, they are hurtful to vegetation, if without mucilage; and by this means, the ſoil becomes quite exhauſted, and a mere *caput mortuum*. Another benefit lime, &c. yield to land, is, that if there be any iron, copper or ſulphur (which are poiſonous to plants), diſſolved in the acid juices of the ſoils, lime, marl, &c. will attract that acid, and let go the iron, &c. which, when become ſolid in a heap, can do no harm to land.

The remedy for land exhausted by lime, &c.—Plough the land as deep as poſſible, ſo as to bring up a new body of mould before winter; then *fallow* it well the enſuing ſummer and autumn, that every part of it may be expoſed to the winter and ſummer air: dung it ſtrongly; then ſow a crop of theſe plants that yield moſt mucilaginous matter (as above mentioned); and before their leaves have done flouriſhing, plough in that crop. If this be done exactly as here deſcribed, the land will acquire a new ſtock of nouriſhment, and come into good heart again.

Properties of mucilage.—Diſſolved in water, and applied to plants, it makes them grow luxuriant. In a moiſt ſoil, it jellies the water, and prevents it from ſoaking through the ſides of the roots of plants. In a dry ſoil, it prevents the water from being exhaled: it gives tenacity to a ſandy ſoil, and friability to a clay ſoil; it is converted into the juices of plants, and nouriſhes them.

Proportional

Proportianal parts of a good soil.—It is presumed they may be as follow. Either one fourth sand, and three fourths clay;—or, three fourths sand, and one clay: This is including water, calcareous earth, mucilage, salts, &c. in the mass of earth you examine.

For instance, in 400 grains of good soil, there may be,

Sand.	*Clay.*	*Water.*	*Calc. Earth.*	*Mucilage.*	*Total.*
73 or 219	219 or 73	— 100	— 7	— 1	— 400.

N. B. The quantity of mucilage, to do real good to a soil, must bear a certain proportion to the quantity of water, as in the above instance there is *one* grain of mucilage to a hundred grains of water. Hence observe the necessity of thoroughly draining land;—for, if there be the greatest quantity possible of mucilage in your soil, yet, if the water should exceed its due proportion, all the mucilage is lost, and of no effect, by the mucilage not having the power to give the necessary degree of tenacity and consistence to the water.

Manures are of two kinds.—One adds nourishment to the soil, as all animal and vegetable putrescible substances from whence mucilage can be found. The other gives no nourishment to the soil, but forces it, by preparing the nourishment already there.

Forcing manures are of two kinds. One resists putrefaction, the other forwards it. That which resists, is, several sorts of salt in the ashes of burnt vegetables, in soot, dung of fowls, some in horse dung, if it be not too putrid, and in sea-water, &c.; also quicklime is a resister of putrefaction. The way in which these act, is to kill the weak fibres of plants, and thereby force them to shoot out stronger ones: they also facilitate the digestion of plants;—they dissolve in water, and prevent it from evaporating too easily;—they destroy insects.

The other sort of forcing manures which forward putrefaction, are certain salts formed from calcareous earth, and spirit of sea-salt, or oil of vitriol. All marl or limestone, six or eight months after being burnt, forward putrefaction, and turn all putrescible matter in a soil into a mucilage; likewise dung over-putrid is a forcing manure, that forwards putrefaction from the salt in it.

N. B. Lime, when burnt, discharges all its fixed air; but, after five or six months, it imbibes again the fixed air, and reverts to its former state of unburnt lime.

From what has been said with respect to the action of marl, and all calcareous earths, it will plainly appear, that if there be little or no putrescible matter in a soil to convert into mucilage, it can have no effect at all (except to prevent the poisonous effects of metal) on the land.

Fermentations in a dunghill.—Salts are not converted into the nouriſhments of plants as mucilage is;—the richer the ſoil, the more effect it will have. As to all acid and metallic ſalts, and ſalt of the earth of allum, they are poiſonous to plants. Fermentations in a dunghill are five. The *1ſt* makes the juices ſweet;—the *2d* makes them ſpirituous like wine;—the *3d*, ſour like vinegar;—the *4th* and *5th* are of the putrefactive kind above mentioned. During the three firſt, the dunghill heats; but when the *4th*, or mucilaginous putrefaction begins, the mucilage forms, and the dunghill grows cold (that is the proper moment for laying the dung upon the land, though it is better to lay it on too ſoon than too late): After this, the laſt fermentation begins, in which the mucilage is converted into ſalts. Great care ſhould be taken, by frequently mixing the whole maſs of dung well together, that every part of it may, as far as poſſible, be in the ſame ſtage of fermentation, leſt ſome ſhould arrive at the laſt ſtage, viz. the ſalts, before the other parts are become mucilaginous. This happens very frequently, where dung and lime are laid in ſtrata in a dunghill, and not well mixed throughout the maſs; much of the benefit of it is thereby loſt.

Plants.—Moſt plants uſed in agriculture, that do not branch out at the ſide above ground, generally do it below ground, as all corns and graſſes do. Feeding corn, or bruiſing the tops of it with a roller, makes it branch out below ground.

All perennial graſſes continue ſuch, by branching out anew every year; for the old root always dies.

Whenever a plant becomes weak, its juices are converted into ſugar, which allures inſects to come and lay their eggs there; hence blights, &c.

Plants abſorb nouriſhment by their leaves, as well as by their roots: and, whilſt their leaves are flouriſhing, they diſcharge into the ground a part of their juices; and, until they begin to flower, they diſcharge a greater quantity than they receive from the earth; conſequently, till then, they enrich the ground. Plants that have lateral flowers, ſuch as peas, lupins, &c. continue to flouriſh during all the time of flowering, which is till the ſeed is ripe. Plants that have terminal flowers, as corn and graſſes, have their leaves withered by degrees in a few days, as the flowering advances; and from that period, they abſorb all their nouriſhment from the ground to perfect their ſeed, and yield no nouriſhment to the ground. Seeds taken from plants in a rich ſoil, branch out more than thoſe taken from plants in a poorer ſoil. No plant robs another of the food it takes in by the root; but, on the contrary, gives it more food; for the ground is kept the moiſter, the more plants there are: but plants, by being too cloſe, rob one another

other of what they receive from above, viz. air, ſun, dews, rain, &c.

There is always the greateſt crop of hay, if cut when the flowering begins to open; for then there is a greater quantity of nourithment in the plants, than either before or after that period.

Ploughing.—Among the numberleſs advantages that attend a thorough ploughing, &c. beſides pulverizing of the ſoil, there are two moſt certain: one is, that if there be any poiſonous qualities in the ſoil, ariſing from metals or ſulphur, you infallibly deſtroy them, by turning them up to the air.

The ſecond is, that you open the way for the fibres of plants to go in queſt of their food, and thereby render them ſtrong and vigorous.

FOR THE FARMER'S MAGAZINE.

HISTORY OF AGRICULTURE.

(From Edin. Encyclop.)

THOUGH agriculture may be considered as of great antiquity, and in some respects as coeval with the first formation of society, yet materials are wanting, from which a progressive history of the art can be composed. It is probable, however, that mankind, in the early ages, derived their subsistence from hunting in the forests, and fishing in the rivers, and from the milk and flesh of such domestic animals as they possessed; but how long they continued in this situation, it is impossible to form any conjecture. From the sacred writings we learn that husbandry was understood by NOAH, who of course taught it to his sons, by whom it is likely the art was spread over the world. The history of the Egyptians informs us, that they were well acquainted with agriculture; and perhaps the people of Italy, under the Roman government, understood all the branches of husbandry much better, and practised them with greater success, than the present inhabitants of that country. There is sufficient authority for maintaining, that an enlightened system of rural economy had become prevalent during the Augustan age, and perhaps long before; for the Georgics of Virgil, and other productions of the Roman authors, show, that husbandry was then not only well understood by the Romans, but correctly and successfully practised.

In Britain, at the period of the Roman invasion, there is reason to presume, that husbandry was hardly known, except in the southern districts; and that, even there, it was very imperfectly

executed. But whatever might be the situation of Britain when invaded by the Romans, it is certain, that the husbandry of the island, from the Land's End to the Frith of Forth, was greatly improved by the Roman soldiers; and that all the grains that are now cultivated, were then raised to a considerable extent. In support of this assertion, could the smallest doubt be entertained of its truth, we might refer to the immense quantities of grain exported from Britain when in possession of the Romans, and the obvious marks of improvement left by that celebrated people when they quitted the island. The Roman conquests, instead of desolating the earth, as too often has been the case in similar instances, insured the improvement of every country that was subdued; and the soldiers of that nation, being drawn from the plough, spread a knowledge of husbandry through every country which came under their dominion. To benefit mankind, and increase their comfort and happiness, seemed to be the invariable wishes of the Roman commanders. They seldom or never burned or laid waste the country which they conquered, but rather strained every nerve to civilize the inhabitants, and introduce the arts necessary for promoting their comfort and happiness. To facilitate communication from one district and town to another, appears to have been a primary object with the Romans; and the works of this kind accomplished by them, are still discernible in numerous places. By employing their troops in this way, when not engaged in more active service, the Roman commanders seem to have had greatly the advantage over our modern generals. Instead of suffering their soldiers to loiter in camps, or riot in towns, thereby enervating their strength and relaxing their morals, the Roman commanders kept their soldiers regularly at work, and, what was still better, at work on objects highly beneficial to the interests of those whom they subjugated.

When the Romans finally withdrew from Britain, the country southward of the Frith of Forth had attained a considerable degree of cultivation and improvement; but it does not appear that the inhabitants had acquired much of the martial spirit of their former masters and instructors. This improvement was, however, soon wasted and dissipated, particularly in the districts between the two walls, by the ravages of the northern tribes, then known under the names of Mæatæ and Caledonians. These fierce plunderers, though undoubtedly the smallest number, prevailed so far over the unhappy Britons, as to induce that enervated people to invite the Saxons to their assistance, who, in their turn, became masters and possessors of the greatest part of the island. Except Wales, and the western part of Scotland, then known under the name of Strath Cluyid, the whole island, south

of

of the Frith of Forth, was in the possession of the Saxons for several centuries.

But the state of South Britain was not fixed or completely settled till the Norman invasion, when customs and habits were introduced, which, to this day, remain so firmly established, as not to be removed without the special interposition of the legislature. To his Norman Barons, William the Conqueror assigned great estates almost in every county, as a reward of their services; and these grants were afterwards enlarged, when forfeitures occurred from the rebellion or disobedience of the old Saxon possessors. The estates so bestowed were, by the great barons or officers, in in some measure divided and bestowed upon their retainers or dependents, under the burden of military service; and in this way feudal tenure was introduced, and created into a regular system.

Before the Conquest, the country situated between the Forth and Newcastle-upon-Tyne, then known under the general name of Laudonia, or Lothian, had been acquired by the Scotish nation, though afterwards the limits of the two countries were nearly the same as they stood at the memorable period of their union. The Saxon government was favourable to internal improvement; or, rather, it continued the system introduced by the Romans; but the Norman conquest, by introducing the feudal system, impeded improvement, and placed husbandry in a declining state. From the Conquest to the days of Henry VIII., the practice of husbandry had received little improvement; and as for theoretical, or scientific knowledge, there is not the slightest vestige of any being acquired, or even sought after, during the long period of five centuries. To the haughty feudal baron, who reigned in a castle, and was provided with an abundant supply of the necessaries of life from his extensive domains, the improvement of the country was a trifling object; and, as his dependents held by military tenure, they considered husbandry as unworthy of notice. Hence agriculture was carried on only by the very lowest of the people, as is plain from the name *Villeyns*, then given to the practical husbandmen; and, in such hands, the art necessarily languished and fell into disrepute. The unhappy wars between the houses of York and Lancaster gave husbandry also a severe shock, one half of the country being desolated and laid waste by the contending factions.

Sir Anthony Fitzherbert, one of the Judges in the Court of Common Pleas, was the first person on record who attempted to enlighten English husbandmen, by writing on the art of agriculture, having, in 1534, published a treatise called *The Book of Husbandry*; and another in 1539, entitled, *The Book of Surveying and Improvement.*

provement. The Book of Husbandry seems intended for the benefit of tenants, containing minute directions for ploughing, managing, and cropping land; together with a full account of the diseases which affect horses and other animals, and of their respective cures. The Book of Surveying relates to castles, woods, parks, mills, and other branches of property; and also contains numerous advices concerning the best way of improving arable land. It has always been understood that Fitzherbert's works were of great benefit to English husbandmen; therefore, a fuller account of them may be gratifying to our readers, especially as the treatises mentioned are now only to be found in the libraries of the curious.

Sir Anthony Fitzherbert, laying down as a primary principle, that the majority of husbandmen live by the plough, first describes the varieties of that implement generally used in his time for tilling the ground; and, from the description given, appears to have possessed correct ideas concerning the different parts of that important implement. He next points out the several articles that belong to a team of horses; and, when speaking of carts and waggons, very properly recommends, that the wheels on which they are mounted should be shoed or bound with iron; from which circumstance it may be inferred, that wheels altogether composed of wood were at that time commonly used. It would appear, that the operative husbandman, in Fitzherbert's days, acted as a jack-of-all-trades; for, among the necessary things belonging to a plough, we find an axe, hatchet, hedgebill, auger, flail, spade and shovel, particularly enumerated. It is also recommended, that young husbandmen should learn to make his *yokes*, ox-boues, stools, and all manner of plough *geare*, lest the purchase of these articles should be too costly for him. Fitzherbert seems to have preferred oxen above horses in executing rural labour, though he frankly admits that horses will go faster than oxen on even and light ground, and are quicker for all sort of carriage work.

Diligence and attention in executing rural operations, are strongly enforced by Judge Fitzherbert. These qualities are no doubt absolutely called for in every husbandman who wishes to farm successfully; and are supported by our author with singular felicity. He quotes the gospel parable about a man putting his hand to the plough, &c.; which he explains in an ingenious manner. According to his definition, the man who looks backward when going at the plough, cannot make good work, but must make *baulks*, and otherwise mislabour the ground; the consequence of which will be, little corn at harvest. He judiciously concludes the argument by stating, that the man who does not attend

attend upon his husbandry, but goes to sport or play, tavern or alehouse, or lies sleeping at home, devoting his time to idle employments, is not worthy to have any corn.

From the particulars stated, the great merit of Sir Anthony Fitzherbert's treatises on husbandry, may in some measure be comprehended. In fact, were these treatises translated, (for many of the words are obsolete, and not easily understood), much benefit might be gained from them by husbandmen of the present day. No doubt several errors may be found in them; but still, as they contain the rudiments of true knowledge, a republication would be highly advantageous, especially if errors were omitted, and additions and explanations given by way of footnotes.

An hundred years, however, elapsed, after the publication of Sir Anthony Fitzherbert's book, before any thing further appeared really deserving the attention of husbandmen. During the Commonwealth, a period favourable to genius and enterprize, and when a number of persons appeared upon the stage of life, whose names would never have been heard of had not a change of government occurred, Walter Blythe, Gabriel Plattes, and other enlightened men, illustrated the art of husbandry in the most satisfactory manner. Blythe's writings, in particular, contain a great deal of sound sense, and not badly expressed, on almost every branch of husbandry. The first part of his *Improver Improved*, published 1652, contains what he calls six pieces of improvement: 1. On floating and watering land; 2. On draining fen and boggy land, and regaining land from the sea; 3. On such enclosures as prevent depopulation, and advance all interests; 4. On tillage of land kept too long in grass, and pasturing others destroyed with ploughing; 5. Discovery of all soils and composts, with their nature and use; 6. On doubling the growth of wood by new plantations.—The second part contains six newer pieces of improvement: 1. On the husbandry of clover and St Foyn; 2. On lessening the charge and burthen of the plough, with divers figures thereof; 3. On planting wild woad and madder; 4. On planting hops, saffron, and liquorice; 5. On planting of rape, coleseed, hemp and flax, and the profit thereof; 6. On the great advance of land by divers orchard and garden fruits. Baring the dedication to my Lord Protector, and other public bodies, the whole of the *Improver Improved* (now become a scarce book) might be reprinted with manifest advantage.

After the Restoration, various improvements were brought to England by refugees, who had resided on the Continent during the government of the commonwealth. It has been generally understood that Sir Richard Weston, one of these refugees, introduced

troduced clover; but it is plain that this valuable variety of grass was sown in England before that period; for Blythe treats both of it and St Foyn in a systematic manner. It is more likely that turnips were then first cultivated; because Blythe does not say a word concerning this valuable esculent, the introduction of which occasioned almost a total change in the English agricultural system of treating light soils.

Before clover and turnips were cultivated on a great scale, the husbandry of Britain was necessarily imperfect. The scourging crops much exceeded the meliorating ones; of course, the produce of the ground was considerably inferior in quantity to what it is now, and a great inconvenience was felt by the public from not receiving a regular supply of butcher meat through the whole year, with which they are now fortunately provided. Another circumstance, which accompanied the old system, was, that light soils could rarely be cleaned without suffering them to be unproductive for a year, when they were summer fallowed; whereas since turnips were introduced, these light soils are more effectually cleaned than formerly, whilst a valuable crop is obtained in the same year. Summer fallow has long been extensively practised in England, and at this day perhaps more so than is necessary, especially upon common-field land, as will be more particularly noticed in another place. With all fields held in severalty, the introduction of clover and turnips has proved of singular advantage, not only in a private, but also in a public point of view. A judicious rotation of cropping may thereby be exercised, insomuch, that one culmiferous crop may not follow another, which could not formerly be avoided; whilst the culture of leguminous crops enriches the soil, increases the stock of manure for rendering it productive, and furnishes the means of supplying the markets with fat cattle and sheep through every month of the year.

The improvement of the English rural system was in some degree promoted by the exertions of Jethro Tull, an inventive genius, who possessed more imagination than solid sense to direct it. By him the drilling or row system of husbandry was brought into practice; and so eager was he in its support, that he altogether neglected to take into account the impracticability of executing it in numberless situations. But the strongest proof, that the imagination of Tull was more brilliant than his judgment was profound, may be gathered from his hostility to manures, and substituting additional tillage in their place, which in every case was his sheet-anchor. The doctrines of Tull were, however, like those of every plausible theorist, adopted by several people; and, to a certain extent, are even fashionable at this day. The utility, nay, the necessity of manures, is now acknowledged by every person; but his plan of drilling

drilling all kinds of grain continues to be ſupported, though it is demonſtrable that this mode of ſowing is chiefly applicable to leguminous crops, and only in few ſoils and ſituations practicable with culmiferous ones.

The plan of cultivating the fields in the like regular manner, as followed in garden huſbandry, is no doubt very deſirable, would circumſtances ſuffer it to be executed; but we are apprehenſive that phyſical impediments are in the way of ſuch a plan, which will not eaſily be removed. Theſe ſhall be noticed in the ſection where Drill-Huſbandry is treated of.

Little further alteration of the rural economy of England occurred, except in the ſuperior attention beſtowed on live-ſtock, by Mr Bakewell and others, till the eſtabliſhment of the national Board of Agriculture, when a general deſire ſeized all ranks to promote internal improvements. Hartlib, a century and a half before, and Lord Kames, in his Gentleman Farmer, had pointed out the utility of ſuch an eſtabliſhment; but it was left to Sir John Sinclair to carry their ideas into execution. To the unwearied endeavours of Sir John are the public indebted for this novel inſtitution, which certainly has done much good, and may ſtill do a great deal more. Two benefits, among many, may be mentioned: 1*ſt*, A great number of new men were brought forward by the Board, whoſe names otherwiſe would probably never have been heard of; and theſe being chiefly practical people, in other words, people profeſſionally concerned in farm-management, agriculture, by their endeavours, was reſcued from the hands of theoriſts, and a revolution of no ſmall extent accompliſhed in rural affairs: 2*dly*, Before the Board was inſtituted, the bond of connexion amongſt agriculturiſts was ſlender, and ſerved few uſeful purpoſes, each ſtanding on his own ſtrength and information, and knowing little more about the practices of conterminous diſtricts, than thoſe of China or the moſt diſtant countries. The eſtabliſhment of the Board did away at once all thoſe evils and difficulties. A common fortreſs, erected for the benefit of all agriculturiſts, and to which each might reſort for advice and protection, was immediately recognized. It made farmers, who reſided in the moſt diſtant quarters of the kingdom, acquainted with one another; and cauſed a rapid diſſemination of knowledge amongſt the whole profeſſion It did more; the art of agriculture was brought into faſhion; and this being the caſe, old practices were amended, new ones introduced, and a degree of exertion manifeſted which had never before been exemplified in this iſland.

But the numerous ſurveys of huſbandry, executed under the authority of the Board, were of ſingular advantage, inaſmuch as they brought to light the practice of every county; and, while they pointed

pointed out the obſtacles which lay in the way of improvement, alſo ſtated the moſt effectual methods of removing them. The very colliſion of argument which ſuch diſcuſſions occaſioned, was of advantage, cauſing agriculturiſts to inveſtigate the principles of the art which they profeſſed, and inducing them to ſearch after new channels of improvement. In ſhort, the Board, in a few years, collected a maſs of agricultural information hardly to be equalled, not to be exceeded, by the accumulated ſtores of every other nation.

That the firſt meaſure adopted by the Board, namely a general ſurvey of the island, was a uſeful one, has been acknowledged by every perſon; but doubts have been entertained by many, concerning the utility of ſeveral ſubſequent meaſures, which deſerve ſome conſideration. It has been urged, and with ſome degree of juſtice, that the endeavours of a public Board ſhould be limited to ſuch objects as exceed the powers of an individual to accompliſh; and that a Board, compoſed of materials like the preſent one, ought not to meddle with the minutiæ or practice of farming; but leave theſe matters entirely to the management or direction of perſons by whom the art is exerciſed. Under theſe impreſſions, it has been ſtated, that the Board were at home, and diſcharging their duty, when they recommended to Parliament a diviſion of common and waſte land: and, in like manner, that their efforts would conſtantly be of advantage, when directed to a removal of obſtructions to improvement, which required legiſlative interference. A recommendation from a public Board carries a weight along with it, enſuring a degree of ſucceſs not to be obtained by the petition or complaint of one or two individuals. Hence the propriety of originating, at the Board of Agriculture, all laws and regulations influencing or operating upon rural œconomy, becauſe the members of the Board may reaſonably be ſuppoſed to poſſeſs a degree of knowledge in rural ſcience, rendering them ſufficiently qualified to judge of, and determine upon, the meaſures to be adopted.

But, on the other hand, it has been urged, that the practice of huſbandry ought not to be included in their deliberations; and that every thing of that kind may ſafely be left to profeſſional people, who are morally and phyſically better qualified to inveſtigate and aſcertain what is right or fitting to be executed. It has been further urged, that when a Board of trade acted in this country, its meaſures were confined to the great and leading objects of commerce, without deſcending to minutiæ, or interfering with the buſineſs of individuals. In a word, it has been ſuppoſed almoſt as prepoſterous for the Board of Agriculture to meddle with ploughing, ſowing, planting potatoes, building cottages, &c. &c. as it would have been for the Board of Trade to iſſue directions to apprentices concerning

concerning the beſt way of folding and tying parcels. Though inclined to think that there is ſome weight in the arguments urged, we adhere to the opinion already given, that much good has been done by the Board, and that a great deal more may ſtill be accompliſhed. The ſcantineſs of their funds, however, is a reproach to the nation, and calls loudly for additional aid to ſuch a meritorious eſtabliſhment. If the generous ſpirit which animated the Perſian kings had pervaded our rulers when the Board was eſtabliſhed, or had the latter eſtimated agriculture to be of the ſame value as it was appreciated by the former, a complaint of this kind would have been ſuperfluous. At the annual feſtival in April each year, in honour of agriculture, the Perſian king was in uſe to addreſs the farmers to the following effect: "I am one of you. My ſubſiſtence, and that of my people, reſts on the labour of your hands; the ſucceſſion of the race of man depends on the plough, and without you we cannot exiſt. But your dependence upon me is reciprocal. We ought therefore to be brothers, and live in perpetual harmony."

We now come to this northern part of the iſland, where huſbandry was long unknown, and ſtill longer imperfectly exerciſed. There is ſufficient evidence, that huſbandry entered Britain at the ſouth-eaſt corner, and travelled, by ſlow and gradual ſteps, to other quarters; but it is difficult to trace the progreſs of the art, or to diſcover how far it had advanced at the time this iſland was evacuated by the Romans. When Severus invaded Scotland, A. D. 207, we are told, "that the Maæatæ and Caledonians, who poſſeſſed all the iſland beyond Hadrian's Wall, inhabited barren uncultivated mountains, or deſert marſhy plains; that they had neither towns nor cultivated lands, but lived on the milk and fleſh of their flocks and herds, on what they got by plunder, or catched by hunting, and on the fruit of trees." Theſe barbarous nations, however, being obliged by Severus to yield up a part of their country to the Romans, that induſtrious people, in the courſe of the third century, built ſeveral towns and ſtations, conſtructed highways, cut down woods, drained marſhes, and introduced agriculture into the diſtricts ſouth of the Frith of Forth, which are generally well calculated for tillage. Though the Romans never formed any laſting ſtation north of the Forth, yet many of them and of the provincial Britons, retired into Caledonia at different times, particularly about the end of the third century, to eſcape from the Dioclefian perſecution. It is probable theſe refugees inſtructed the natives; and as the eaſtern coaſt of Caledonia was remarkably fit for cultivation, there is little doubt but that the Pictiſh nation, who inhabited it, were early initiated into the art of agriculture. Even the Caledonians of the weſt, who in the

fourth

fourth century began to be called Scots, were not altogether ignorant of husbandry in this period; for St Jerome reproaches Celestius, who was a Scotchman, "That his belly was swelled or distended with Scots pottage, or hasty-pudding." This is at least a proof, that, in the beginning of the fifth century, the Scots, or western Caledonians, lived partly on oat-meal, a kind of food to which they had been absolute strangers about two hundred years before, when invaded by the emperor Severus.

Till the reign of Malcolm Canmore, in the eleventh century, the progress of husbandry was very slow: but during his reign, a greater degree of attention was paid to the cultivation of the country. This increased attention arose from the number of Anglo-Saxons who migrated at that time into Scotland, by whose endeavours the face of the country was changed from that of a barren wilderness, to that of a well regulated and cultivated territory. During the twelfth and thirteenth centuries, the lowlands of Scotland were improved considerably, and their inhabitants were prosperous and happy. As a proof of their internal prosperity, it was in these periods that all the religious houses were erected; and it is plain, that before any nation can be munificently pious, it must first be flourishing and rich. In these periods the greatest part of our modern towns and villages were also built; and it was then that the people began to be civilized, and society to assume something of its present shape. Circumstances, however, soon occurred, which blasted, and in a manner destroyed, all these fair prospects; and Scotland, from continuing flourishing and prosperous, was so completely wasted by civil broils and foreign wars, that the efforts of the people, during the four succeeding centuries, were scarcely sufficient to restore matters to their former footing.

These civil broils originated in a contested succession to the crown, wherein the parties, in the first instance, were nearly matched; but afterwards, by the interference of Edward of England, the scale was turned, and, as generally happens in such cases, the country was brought under the dominion of a foreign invader. The death of Alexander III. in 1286, was the source of all these evils, occasioning a contest concerning the succession between John Baliol and Robert Bruce; which, in the first place, almost ruined Scotland, and ultimately brought destruction upon the followers of Baliol, and those who adhered to Edward of England, who claimed the sovereignty as lord paramount of the country. This contest, which lasted for many years, stopped the growing prosperity of the country; occasioned the towns and villages to be destroyed; turned the people's attention from internal improvement to resisting external attacks; and rendered them as barbarous and uncivilized, as they were before the days of Malcolm Canmore. The baneful

baneful conſequences which flowed from a diſputed ſucceſſion, were hardly overcome, when England and Scotland were united under the government of one ſovereign; nor did they altogether diſappear till the middle of the 18th century. Before that time, the internal improvement of the country was neglected and overlooked, whilſt the great bulk of the inhabitants continued in an abject and miſerable ſtate, imperfectly fed, deſtitute of other comforts, without the means of improvement, and altogether in a ſituation which can hardly be deſcribed, far leſs figured, at the preſent moment, when all theſe circumſtances are completely reverſed.

Without inſiſting upon theſe matters, it may only be added, that the large armies brought into the field by the partizans of Baliol and Bruce, chiefly drawn from the Low-country diſtricts, furniſh inconteſtable proof, that the population of the country was then extenſive and numerous. Now, as population and food muſt always go hand in hand, or, ſpeaking more correctly, food muſt always precede population; a ſure evidence of agricultural proſperity at the end of the 13th century is thence furniſhed. Indeed, independent of abſtract reaſoning, we have concluſive proof of the flouriſhing ſtate of agriculture in Scotland from other ſources. According to Hemingford, a writer of no mean authority, it appears that the Engliſh army, when beſieging the caſtle of Dirleton, in Eaſt Lothian, A. D. 1299, ſubſiſted upon the peas and beans growing in the adjoining fields. Every agriculturiſt knows well, that theſe grains cannot be ſucceſsfully cultivated, till huſbandry has reached a pretty advanced ſtate; therefore it may be preſumed, that the agriculture of the diſtrict alluded to, was at that period conſiderably improved. But another circumſtance, ſtill more deciſive, may be gleaned from the wardrobe account of Edward I.; wherein it appears, that, when that monarch invaded Galloway in 1300, he purchaſed and exported from Kirkcudbright to Whitehaven, and other parts of Cumberland, greater quantities of wheat than perhaps the modern agriculture of that province can ſupply at the preſent day.

But the moſt preciſe and correct account of Scotiſh agriculture, during the Anglo-Saxon government, or from the reign of Edgar, who mounted the throne in 1097, to the deceaſe of Alexander III. 1286, may be found in Mr Chalmers's CALEDONIA, recently publiſhed, wherein the moſt diligent reſearch is diſplayed, and every ſtatement ſupported by reſpectable authorities. The authorities cited by Mr Chalmers are numerous and deciſive. Without truſting to former writers, who rarely took the trouble to aſcertain the truth of what was aſſerted, this gentleman ſeduloufly conſulted the ancient records, both of public bodies and private individuals, and has thereby thrown a light upon the antient hiſtory of this

country, ſufficiently bright to illuminate the dark periods which he treated of, and enlighten the people of the preſent day, reſpecting the former ſtate of their native country, and the progreſs of agriculture, and other uſeful arts.

From the intereſting particulars communicated by Mr Chalmers, ample information is received concerning the favourable condition of rural economy in Scotland, at the end of the 13th century; whence it may be inferred, that the Low-country diſtricts, eſpecially thoſe ſouth of the Forth, were in a rapid ſtate of improvement. It muſt, however, be remarked, that little of that improvement was owing to the Celtic natives, nearly the whole of it being attributable to the foreigners introduced by the Scoto-Saxon kings. From the reign of Edgar to the concluſion of the Saxon dynaſty, numerous bodies of Anglo-Saxons, Anglo-Normans and Flemings, ſettled in Scotland, and, by favour of the ſeveral monarchs, acquired vaſt poſſeſſions in many diſtricts. Edgar, the firſt of the Saxon dynaſty, forced his way to the throne by the deciſive aid of an Engliſh army; and afterwards gradually brought in a new people, whoſe polity was widely different from that of the aboriginal inhabitants. Alexander I., who married an Engliſh princeſs, likewiſe encouraged ſettlers of that nation; but the reign of David I. was moſt propitious to adventurers from foreign countries. That prince, having married an Engliſh counteſs, who had numerous vaſſals, was attended to the throne, in 1124, by a thouſand Anglo-Normans, to whom he diſtributed extenſive landed poſſeſſions, and otherwiſe afforded protection and encouragement. In fact, a change then took place in the Low-country diſtricts of Scotland, ſomething ſimilar to what is now going forward in the Northern or Highland diſtricts.

Numerous colonies of Flemings alſo ſettled in Scotland, and from this ſtock ſeveral of the firſt families of the country have ſprung. The Celtic people had their hamlets, to which they gave deſcriptive names in their own language; but when the Anglo-Normans were introduced, their firſt object was to build a ſtrong-hold or caſtle, around which the followers of the chief ſettled, and thus formed a village, and in ſome caſes, a town; in which practice they were much encouraged by the ſeveral ſovereigns, who wiſhed to bridle and reſtrain the ferocity of the natives. The policy of the Scotch kings, during the Saxon dynaſty, prompted the building of caſtles in every place where a convenient ſite occurred; and it was under the protection of theſe ſtrongholds, that towns aroſe, and induſtry began her career. Such a ſyſtem of policy, however, was viewed by the Aborigines with indignation. Inſurrections were often raiſed, and attempts made to burn and deſtroy

deſtroy the towns ſo erected, and to lay waſte the lands which belonged to the inhabitants of theſe towns. After the capture of King William, in 1174, when anarchy prevailed for ſome time, the new ſettlers fled to the king's caſtles for ſhelter; and ſuch had been the progreſs of colonization, that the towns and boroughs of Scotland were, at that period, chiefly inhabited by foreigners.

A policy of a different kind, but equally beneficial, contributed much to the improvement of the country. The erecting of ſuch a number of religious houſes, in the twelfth century, was attended with ſalutary effects; because the monks being drawn from England and foreign countries, of courſe brought along with them the arts exerciſed in theſe countries, to the great benefit of the kingdom in which they now ſettled. These eccleſiaſtics had their dependants, to whom they granted parcels of land on conditions of ſervice; and it muſt be confeſſed, that the church lands were firſt improved, and in ſuch a ſubſtantial way, that many of them to this day continue to yield more productive crops than the lands then in the hands of the barons, though at firſt ſight there may appear no difference in their natural value. The monks brought along with them many craftſmen or artiſans from foreign countries, and in this way the ſettling of every religious houſe may be conſidered as the plantation of a new colony of the Teutonic race amidſt the Celtic inhabitants of North Britain.

The Succeſſion War gave a ſhock to the proſperity of Scotland, from which it had not altogether recovered, when the whole iſland was incorporated under one government. Were there the ſmalleſt doubt reſpecting the conſequence of the wars which, with ſhort intermiſſions, prevailed from the end of the thirteenth to the middle of the fourteenth century, it might be removed by a reference to the two valuations, called the Old and New Extent, wherein full evidence is diſcloſed concerning the deterioration or waſte which had taken place in North Britain. The old extent, taken in the reign of William the Lion, is nearly double the ſum returned under the new extent made up in 1369, after the capture of David Bruce. But this difference of value will excite no ſurpriſe, when it is conſidered that the buſineſs of the inhabitants had been chiefly reſtricted to fighting and deſtroying one another, and to burning and plundering, inſtead of meliorating and enriching, the country. The ſame conduct, repeated in our day, would lead to ſimilar conſequences; for internal improvement is incompatible with a ſtate of warfare. Few countries of Europe were more proſperous and happy than Scotland at the death of Alexander III.; and few have ſuffered more calamities than were entailed on that kingdom by his premature deceaſe. The long and inveterate hoſtilities which followed, waſted the o-

pulence of the country, and entailed a degree of penury on its inhabitants, which has only of late been completely surmounted.

During the fifteenth and sixteenth centuries, rural economy continued to languish, especially upon the estates of the barons, where the old trade of fighting was regarded as of greater importance than that of manuring and cultivating the ground; but the ecclesiastical lands were considerably improved, and the tenants of them were generally much more comfortable and happy than those upon the estates of laymen. The reformation of religion, beneficent as it was in other respects, rather checked than promoted agricultural improvement; because the change of property, which then occurred, occasioned a similar change of tenantry, and almost took husbandry out of the hands of the only class of people by whom it was practised upon correct principles. The dissolution of the monasteries, and other religious houses, was also attended by injurious consequences in the first instance; though latterly the greatest benefit has been derived from tythes and church lands having come into the hands of laymen. It is probable, had not these circumstances occurred, that the tythe system would have still remained in force, and Scotish husbandry have continued under a burthen, which sinks and oppresses the cultivator of the sister country. But tythes having got into the hands of lay titulars, or impropriators, were in general collected or farmed with such severity, as to occasion the most grievous complaints, not only from the tenantry, but also from the numerous class of proprietors, who had not been so fortunate as to procure a share of the general *spulzie*. This, added to the desire shown by the crown to resume the grants made when its power was comparatively feeble, occasioned the celebrated submission to Charles I., which ended in a settlement, that in modern times has proved highly beneficial, not only to the interest of proprietors, but likewise to the improvement of the nation. Tythes, in fact, are a burthen, which, to all intents and purposes, operate as a tax upon industry, though it was a long time before the beneficial consequences of withdrawing them were fully understood, or even discerned in this country.

The accession of James to the crown of England, is understood to have been unfavourable to the agricultural interest of Scotland; inasmuch as the nobles and gentry, being by that event led into great expenses, raised the rents of the tenantry considerably, whilst the very circumstance which occasioned the rise, contributed to lessen the means of the tenant for making good his engagements. Scotland, however, was much benefited by the soldiers of Cromwell, who were chiefly English yeomen, not only well acquainted with husbandry, but, like the Romans at a former

former period, studious also to improve and enlighten the nation which they had subdued. The soldiers of Cromwell's army were regularly paid at the rate of 8d. per day, a sum equal at least to the money value of two shillings of our currency: and as this army lay in Scotland for a great many years, a flux of money thereby found its way into the country. Perhaps the Low-country districts were at that time in a higher state of improvement than at any period since the demise of Alexander III. This improvement does not altogether rest upon conjecture, but is supported by many facts. In the counties of Lanark, Renfrew, Ayr and Kirkcudbright, the rentals of various estates were greater in 1660 than they were 70 years afterwards; and the causes which brought about a declension in value are ascertained without difficulty. For instance, the large fines exacted from country gentlemen and tenants in these counties, during the reigns of Charles II. and his brother James, were almost sufficient to impoverish both proprietors and cultivators, had they even been as wealthy as they are at the present day. Added to those fines, the dreadful imprisonments and other oppressive measures pursued by those in power, equally contrary to sound policy, as to justice and humanity, desolated large tracts,—drove the oppressed gentry, and many of their wealthy tenants, into foreign countries,—and extinguished the spirit of industry and improvement in the breasts of those who were left behind. A succession of bad seasons soon after the Revolution, heightened these calamities, and, in short, completed the ruin of the tenantry. It is well known, that innumerable farms at that period remained unoccupied; proprietors having to search after tenants, who were able to stock and cultivate the ground, with almost the same assiduity that must now be displayed by tenants who are out of possession.

It would be unpardonable to omit noticing the active efforts of a Society, formed in 1723 for the improvement of agriculture, consisting of the principal noblemen and gentlemen of Scotland, who continued their labours for more than twenty years, greatly to their own credit, and to the public benefit. Of this we have sufficient evidence from a volume of their Transactions, published in 1743 by Mr Maxwell of Arkland, under the auspices of the celebrated Mr Hope of Rankeillor, one of the most intelligent gentlemen of that period.

Several enactments of legislature, however, had been made in the seventeenth century, which latterly have produced much benefit to agriculture. Independent of the regulation of tithes, a measure of primary importance to husbandmen, the laws relative to the enclosing of land, and dividing of mixed possessions, may be

ranked as peculiarly calculated to excite improvement, in ſo far as the trouble of accompliſhing theſe objects was greatly leſſened, whilſt preciſe rules were laid down, by which theſe improvements might be carried into effect. In theſe branches of rural legiſlation, Scotiſh practice holds out a judicious pattern for the imitation of our Southern neighbours, who are confeſſedly behind in every one of them, and, in fact, cannot move an inch without the aid of the legiſlature. Want of capital ſtock was the greateſt impediment to Scotiſh agriculture; but this was partly removed by the rebellion of 1745, when vaſt ſums of money were poured into the country; and, ſince that period, the huſbandry of Scotland has progreſſively improved, in ſuch a manner as to bear compariſon, local circumſtances conſidered, with that of any country in Europe. Even the abrogation of the feudal ſyſtem, by paſſing the Juriſdiction Act, was of material advantage, inasmuch as the ſecurity of cultivators was thereby increaſed, and their ſituation rendered infinitely more independent, than in former times. Since the concluſion of the American war in 1782, improvement has proceeded with ſingular rapidity in every diſtrict; and while the rental rolls of proprietors have been doubled, tripled, and quadrupled, the condition of the tenantry, and of the lower ranks, has been ameliorated almoſt in a proportional degree. Theſe circumſtances are ſure tokens of agricultural proſperity; demonſtrating, in the moſt forcible terms, that huſbandry is a main pillar of the ſtate, and that the happineſs and welfare of the community depends greatly upon the manner in which the art is executed. No nation, whoſe huſbandry is feeble and imperfect, can be conſidered as really proſperous, notwithſtanding that conſiderable advances may be made in other arts; becauſe, when the art of raiſing food is neglected, all others muſt ultimately be forſaken. In a word, to promote and encourage huſbandry, to remove every obſtacle that ſtands in the way of exerciſing it, and to ſecure thoſe concerned in carrying on the art, are duties obligatory upon the government of every country; and according as theſe duties are diſcharged, ſo will the wiſdom of ſuch a government be eſtimated by every man who feels for the proſperity of the ſtate, or is attentive to the ſources whence that proſperity proceeds.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

Thoughts concerning the Propriety of raiſing a greater Quantity of Potatoes than uſual, on account of the preſent Political Situation of Britain.

SIR,

I write to you on a ſubject which appears to me of the greateſt national importance. A ſuperficial glance at the preſent ſtate of Europe

Europe must convince us, that a failure of the ensuing harvest, which Heaven avert, could not be relieved by importation from the Continent, every port of which is, or soon will be, shut against us. America is fast verging to a state of hostility—even now exportation is prohibited. Supplies from Canada must be *very limited* and precarious. Sicily, formerly the granary of the Roman empire, is now comparatively unproductive; at any rate, its overplus will be consumed by Malta, and a British army of 15,000 men. Rice, from India, can only be imported at an enormous expense; and, even on the most favourable calculation of the greatest quantity possible to be thus introduced, would afford consumption for only two or three weeks. All these circumstances prove, that we must depend on ourselves alone for subsistence, until another state of things arises in Europe. My object in exhibiting this picture, is to induce you, if you concur in my opinion, to exhort your readers, and the public at large, to guard against the fatal contingency of a bad harvest, by planting potatoes to a much greater extent than usual. By nearly the same preparation, and a somewhat greater expense, potatoes might be substituted for turnips, cabbages, carrots, and other green crops, on a very great proportion of soils. They would be of equal, as has been proved, if not of greater value, than any other crop, for fattening cattle; and I believe it is generally allowed, that where necessity has obliged recourse to be had to that root for the sole subsistence of man, one acre of potatoes is equal to three of wheat. In short, as an agriculturist, you can be at no loss for a variety of arguments to enforce your recommendation of the measure I suggest. I think a public address on the subject from the Board of Agriculture, might have a good effect on the farming public. During the ensuing half year, it is probable that a stagnation of *foreign* trade will take place to a *very great degree:* indeed our own colonies and South America are our only outlets; the latter even contingent. All our manufactures and manufacturers connected with our foreign relations, must suffer. Should this state of distress in trade and manufactures, especially the latter, be accompanied by scarcity of provisions, or by an enormous rise in their price, it is difficult to say what would be the consequences. We might be conquered by ourselves. The riots last year in Manchester and its neighbourhood, show to what extremities the manufacturing part of the community were reduced, and also to what extremities they would proceed on all similar occasions of distress and want of employment. If you approve of these hints, insert in your first Number an animated address to the nation, in your *best manner*, on the subject of this letter. I think it would not be amiss to add a few comparative calculations on the expense,

produce, &c. of potatoes, turnips, and other similar crops—if not in *money*, at least in the number of ploughings, harrowings, quantity of manure, hoeings, &c. &c. I am yours.

Aberdeenshire. A WELLWISHER.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

The Farina of Potatoes recommended as a Substitute for Oatmeal.

SIR,

IT would be superfluous to attempt saying any thing in recommendation of the enclosed Essay to you, or any one who is a competent judge in matters of this nature. However trifling the subject may appear at first view, I humbly trust you will perceive its vast importance to agriculture. Besides, the potato farina is a valuable and imperishable provision against scarcity. It would be peculiarly advantageous to those parts of the Highlands and islands of Scotland, which suffer frequent hardships from want of corn.

The mode of extracting the farina from the potato may be greatly simplified; and if you are pleased to honour the enclosed Essay with a place in your next Magazine, I will send you my future experiments on that process. I am, with all due regard, Sir, your most obedient humble servant,

W. C.

Flookersbrook, near Chester,
14th Feb. 1809.

A pleasant and profitable Substitute for Oatmeal.

THE respectable author of the Wealth of Nations says, that 'if, in any country, the common and favourite vegetable food of the people should be drawn from a plant, of which the most common land, with the same, or nearly the same culture, produced a much greater quantity than the most fertile does of corn, the rent of the landlord, or the surplus quantity of food which would remain to him, after paying the labour, and replacing the stock of the farmer, together with its ordinary profits, would necessarily be much greater;—population would increase, and rents would rise much beyond what they are at present.'—*Wealth of Nations, vol. I. p.* 248 *&* 250.

At a time when the high price of bread places that first article of necessity almost beyond the reach of the labouring poor, and when many circumstances, both foreign and domestic, combine to threaten the country with a progressively increasing dearth of corn,

corn, any expedient for diminishing the consumption, and increasing the quantity of graniverous food, cannot fail to meet with due consideration from the public: I say, *increasing* the *quantity* of graniverous food; for a more extensive use of leguminous food would necessarily augment the produce of grain in the country, since crops of that sort, under judicious culture, tend to meliorate the soil, and prepare it for yielding the most abundant crops of every kind of grain.

One cause, perhaps, why bread has always been cheaper in France than in most other countries, is, the vast proportion of leguminous food used by people of all ranks in that nation. This wholesome and nutritive diet (in the culinary preparation of which the French are inimitably expert) precluding, in a great measure, the necessity and use of animal food, enables them to confine the grazing system within very narrow limits, and to carry that of agriculture to an immense extent; for it seems to be an established fact, that *one acre* of arable crop, properly cultivated, will produce more human food than four acres of the same land in a state of pasture for feeding stock; so that, where * one million of people may be maintained by pasturage, four or five millions may be maintained by tillage.

It is a circumstance much to be regretted, that the progressively increasing consumption of animal food throughout Great Britain, is such as induces both farmers and land-owners to extend the grazing system to a degree far beyond what is compatible with the permanent welfare of the community. Vast imports of corn must be made annually, or population must decrease: but the population of a state cannot retrograde without experiencing great misery. 'If the luxurious intemperance of consuming flesh-meat principally, and of drinking intoxicating liquors, should increase among us, so as to thin the inferior orders of society by scarcity of food, and the higher ones by disease both of mind and body, it may hereafter be said of Great Britain, amid her foreign conquests, as formerly of antient Rome—

——Sævior armis
Luxuria incubuit, victumque ulciscitur orbem.

Dr Darwin's Philosophy of Agriculture.

The substitute for oatmeal which the writer has to propose, is no new invention. Potato farina has long been used as a delicate article of food in some parts of the Continent, but has not, at least to the writer's knowledge, been used as such in Great Britain. It is true, some of our eminent physicians have recommended

* See Communications to the Board of Agriculture, vol. III. p. 12, &c.

mended it as a restorative diet for consumptive people. But on what general principle does the faculty select articles of diet for the sick? Is it not this,—*to prefer those articles* chiefly, which contain the *greatest quantity* of *nourishment possible, under the smallest volume possible?* Now, is not this rule equally applicable to people in health? Will not the same food which renovates decayed strength in the sick, tend to preserve strength in the healthy? The Scotch labourer, after eating his half gallon bicker of oatmeal porridge, is unwieldy, and must lose some time in rest ere he can resume his labour with comfort to himself. He is also frequently troubled with the pernicious complaint vulgarly termed the *heartburn.* The potato farina seems to be exempt from this last inconvenience; and being in quality highly nutritive, the quantity required for a full repast is comparatively small. 'The common people in Scotland, who are fed with oatmeal, are in general neither so strong nor so handsome as the same rank of people in England, who are fed with wheaten bread. They neither work so well, nor look so well. But it seems to be otherwise with potatoes; the chairmen, porters, and coalheavers in London, and those unfortunate women who live by prostitution (the strongest men and the most beautiful women, perhaps, in the British dominions) are said to be the greater part of them from the lowest rank of people in Ireland, who are generally fed with this root.'—*Wealth of Nations, vol. I. p.* 251.

The mode of using the farina is simply this;—the milk or broth, put into a pan, is set on the fire to boil, except a small quantity in which the farina is to be mixed. One heaped teaspoonful of farina for every pint of milk, is to be well mixed with the cold liquid which was left out for that purpose; and when the milk on the fire boils, this mixture, with the addition of a little salt, is poured into it, and the whole is gently and constantly stirred until it has simmered a very few minutes, when it is taken off the fire for use.

One quart of this palatable gruel, with a slice of bread and cheese, will make a most comfortable and nourishing breakfast or supper for a labouring man. It may be sweetened with a little treacle, for children; and they will soon prefer it to every other breakfast.

It is deemed unnecessary to describe here the simple and easy process of extracting the farina from the potatoes; this being already pretty well known among the country people in remote districts, and is practised in order to make starch for linen. It may be done, without any loss of time, by the farm-servants, in the long winter evenings.

When

When potatoes are cheap and plentiful, every good and provident housewife will store up a few hundred weights of this excellent farina for future contingencies. It will probably keep good for a great number of years. The writer has some at present which was made in the winter of 1804: it is equally as good and sweet, as on the first day it was made: there is no perceptible alteration whatever. This farina might be advantageously used on board our fleets, both royal and commercial, perhaps to the entire exclusion of oatmeal and wheat flour. It would stow in less room, be infinitely less expensive, and less perishable than the former. Beef broth thickened with this essential farina, would, with the aid of biscuit, prove a most wholesome and nourishing repast for our sailors, precluding the necessity of a more solid food.

It is earnestly recommended to respectable and patriotic matrons, to give this comfortable breakfast a fair trial among their farm-servants, and endeavour to establish its use in their respective neighbourhoods. But let them carefully disguise its name to the work people at first; for, were it equal to the manna which fell from heaven around the tents of the Israelites, they would spurn it if they knew it was extracted from the homely potato. They would be as much averse to changing their oatmeal gruel for a cheaper, though *better* diet, as they are to changing their wretched implements of husbandry for others, with which they might perform double the quantity of labour in the same given time, with more ease to themselves.

The rich, as well as the poor, should adopt the use of this excellent farina: it is susceptible of many culinary preparations, and, under certain forms, is not inferior to some of our favourite articles of luxury.

Let us now consider, under an economical and agricultural point of view, the immense advantages which would result from a general use of the potato farina instead of oatmeal. At the last gathering season, the best sorts of potatoes sold in Chester market at 2s. 6d. the measure of 90 lib. In remote districts, the price was probably much lower. Ninety pounds weight of the best meally potatoes will yield 12 lib. 13 oz. of farina; which, at the rate of 2s. 6d. the measure for potatoes, will only come to 2¼d. per pound with a fraction, but say 2¼d. per pound. Nothing is allowed for manufacturing the farina, since the refuse of the potatoes will do more, as pigs'-meat, than compensate for that trouble, seeing it is to be done by the farm-servants in the winter evenings. One pound of farina will thicken 16 quarts of milk, which, with a slice of bread and cheese to each person, will make a pleasant and nourishing breakfast for 16 labourers.

Oatmeal

Oatmeal costs, in Chester, 3½d. per pound. In the way it is used in Scotland, 12 lib. of oatmeal are required to make a breakfast for 8 labourers. *(See Communications to the Board, vol. V. part I. p. 96.)* The same quantity must, no doubt, be used at supper. Thus, 8 labourers will consume 8760 lib. of oatmeal in one year for their breakfast and supper only; which, at the rate of 3½d. per pound, will amount to the sum of 127*l.* 15s. One pound of potato farina will, as above observed, thicken 16 quarts of milk or broth, which, with a slice of bread and cheese to each person, will make a nourishing breakfast and supper for 8 labourers; and 365 lib. of farina, the quantity required in one year, will only amount to the sum of 3*l.* 16s. 0½d. This, deducted from 127*l.* 15s., leaves 123*l.* 18s. 11½d. in favour of the potato farina. But, as it may not be easy to fix an accurate value on the bread and cheese indispensably necessary for the labouring men, with the gruel of the potato farina; let us compare the produce of an acre of potatoes with that of an acre of oats. An average crop of oats will yield about 1008 lib. of meal per statute acre.—*See Communications to the Board, vol. III, page 12, &c.*—An average crop of the best mealy potatoes, say 8 tons per statute acre, (a very moderate average; for if the most prolific sorts are judiciously cultivated by the drill husbandry, they will average 12 tons per acre), will yield 2551 lib. of farina. Thus, the produce of one acre of the best potatoes in farina, equals the produce of 2 a. 2 r. 4 p. of oats in meal, weight for weight: but one pound of potato farina will go as far in thickening milk or broth, as two pounds of oatmeal; therefore, one acre of the best potatoes employed in this way, is equal to 5 acres of oats, fractions omitted. And, on a farm where the produce of 20 acres of oats would be required as a part of the food of the labourers, 4 acres of the best potatoes in farina would accomplish the same end; leaving a surplus of 16 acres for wheat, one crop of which, if the soil is propitious, and the culture good, will yield 24,480 lib. of bread,—enough to serve 33½ persons for one year, allowing 2 lib. per day to each person. Let this simple and salutary change of food be adopted throughout the empire; let the vast surplus of acres which it affords be properly cultivated for alternate green and white crops, and we shall soon be exonerated from the shameful and ruinous necessity of importing corn from abroad.

Besides this vast surplus of acres, another very important advantage would result from the general practice of substituting potato farina for oat-meal, viz a progressive amelioration of the soil. When land has borne a crop of oats, it must be laid down in grass, or fallowed, before it is fit to bear another profitable corn crop; whereas the land which has yielded a crop of well cultivated

cultivated potatoes, is fit, as to culture, for bearing a *maximum* crop of wheat, or of any other grain congenial to the soil and climate. It seems to be generally allowed, that a crop of potatoes, cultivated in a masterly manner, by the drill husbandry, is a preparation for wheat, not inferior to a naked fallow. Every attentive and intelligent farmer will acknowledge, that oats are a very impoverishing crop to the soil. They are, and have been considered as such, in every country.

" *Urit enim Lini campum seges, urit avenæ.*" VIRG.

They can only be grown with advantage on fresh land, and on the loamy free soils. They are generally unprofitable on clays, and should seldom, if ever, be thrown into the bosom of a real wheat soil. They are the bane of ignorant farmers, on old exhausted tillage, where barley, or almost any other grain would prosper better. In some districts of Scotland (particularly that of Canonby on the Border) where oat-meal is the principal food of the people, it is pitiful to see how eager the poorer sort of farmers are to get oats from exhausted tillage. They sow them year after year on the same field; and, as may be well expected, both the land, the crop, and the tenant, become poorer, and more dirty every year.

" The food produced by a field of potatoes, is not inferior in quantity to that produced by a field of rice, and much superior to what is produced by a field of wheat. It is difficult to preserve potatoes through the year, and impossible to store them like corn, for two or three years together. The fear of not being able to sell them before they rot, discourages their cultivation, and is, perhaps, the chief obstacle to their ever becoming in any great country, like bread, the principal vegetable food of all the different ranks of people."—*Wealth of Nations*, vol. I. p. 251.

But, let the potato farina be generally substituted for oat-meal, and this discouraging obstacle will, in a great measure, disappear. The farina may be stored in casks, perhaps, for any number of years; and may, like corn, become an object of extensive commerce.

Although potatoes delight in a dry, deep, sandy loam, they may be profitably raised on almost any soil whatever, provided the culture be judiciously adapted to the nature of the given soil. They materially improve a stubborn white clay; darkening its colour considerably, and thereby rendering it more capable of absorbing the rays of the sun. On such soils, they might be planted in the same field successively, for some years together. The improvement, both of the soil and of the crop, would be rapid and progressive.

W. C.

NOTE

NOTE BY THE CONDUCTOR.

THE general object of the above paper is entitled to much commendation, though we cannot, in every instance, defend the principles urged by our worthy correspondent, or support several of his calculations: As, for instance, he states that eight labourers will consume 8769 lib. (62½ bolls) of oat meal, in a season, for breakfast and supper; whereas the quantity paid to eight labourers is no more than 52 bolls; and with this quantity, they not only support themselves, but their families also. Again, the price of oat meal is charged at 3½d. per lib.; whereas oat meal has not, in many places, been higher than 2½d., and at the very most 2¾d. per lib. this season. Notwithstanding these remarks, which we were in duty bound to offer, the general principles of our correspondent's paper seem well entitled to public consideration. N.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

SIR,

THE proceedings of the *Workington Agricultural Society* having of late greatly attracted public notice, on account of the ardent spirit and judicious measures to introduce and promote improvement, displayed by the President J. C. CURWIN Esq., I am led to suppose that you will confer a favour of considerable value upon your readers, by inserting the first part of the President's Report for the year 1808. In that report, the President displays a knowledge in rural art not often possessed by men of his exalted rank, and evidences a marked and perspicacious discernment of the obstacles in the way of improvement, seldom exceeded by a professed economist. Were the majority of British landed proprietors to come forward with heart and hand to support agriculture, as has been done by MR CURWIN,—were even one half of the numerous agricultural societies which swarm over Britain, to be under the guidance and direction of men gifted with the same talents, incalculable benefits would follow to the public interest. I just mention these things; though, probably, on an after occasion, I may enlarge my observations.

I am yours, &c.

AGRESTIS.

The President's Report.

ALL eſtabliſhments which have, in any material degree, proved inſtrumental in benefiting mankind, inſpire a lively intereſt and deſire to trace the circumſtances which led to their commencement and

and formation. We are anxious to learn whether they were copied from ſocieties preeſtabliſhed, or were inſtituted on the ſpur of the occaſion to meet and remedy grievances, or promoted with a view of forwarding plans of general benefit and utility. Where the period of eſtabliſhment is remote, it may be difficult to aſſign the motives; not ſo, however, to form a tolerably correct judgement of the opinion of the times, by attending to their progreſs.

Societies that have had the good fortune to inſpire a warm and active zeal in every individual concerned, will be characterized by the rapidity and extenſiveneſs of their effects. The ſcale of their influence is not to be computed by the ſphere of action of the body; it will imperceptibly compel others to act, and thereby make them inſtrumental in promoting its intereſt. This affords a ſatisfactory ſolution of the rapid improvement your ſociety has effected, in ſo ſhort a ſpace of time: the unexampled ſpirit that marked the commencement of your inſtitution, afforded a data to juſtify the moſt ſanguine hopes of the reſult. What might not be expected from ſuch a combination? Impelled to act from conviction of the benefits which were to ariſe to all concerned, as well as to the community at large; uninfluenced by power—untinctured by party,—there was nothing to prevent, and every thing to promote, unanimity and cordiality of ſentiment. Happily, this is exemplified; each ſucceeding year has ſtrengthened the bonds, and enlarged the ſphere of our union.

The ſentiments which prompted you to ſanction and ſupport this eſtabliſhment, enſured your cooperation in forwarding the object it had in view. Each of us felt we had a duty to perform; and conſidered the credit and reputation of the ſociety as a joint and common ſtock. How gratifying to me to have, in the preſent year, ſuch ample and creditable proofs of your ſucceſs to ſubmit to you! Theſe are acknowledged, in moſt inſtances, to have ſprung from your example and exertions.

At the ſame time that I feel this a ſource of honeſt pride, highly creditable to you, it affords me a further ground of ſatisfaction, in removing from my mind all anxiety and fear that your intereſt and reputation ſhould ſuffer by any inadequacy of mine in the diſcharge of my duty. My taſk is rendered light; ability could add nothing to the ſimplicity and clearneſs of the ſtatements of the various experiments.

I ſhould be inexcuſeable were I to omit ſtating, that your public ſpirited exertions have not paſſed unnoticed or unapplauded, in various parts of the kingdom. I will not diſguiſe my feelings on the credit which has been given you; truſting, upon this, as every other occaſion, our ſentiments will be in uniſon. I am proud that the ſpirit and good ſenſe of the yeomanry and farmers in Cumberland and Weſtmoreland, uninfluenced and unſolicited,

ſhould

ſhould have produced the moſt numerous Provincial Agricultural Society in Great Britain. Indulge me in the wiſh, that each ſucceeding year may add to the reputation of the ſociety; and that the conviction of agricultural being the baſis both of individual and public proſperity, may give additional energy to all our exertions.

The eſtabliſhment of your ſociety commenced at a period highly propitious to the intereſts of agriculture. The recent alterations which had been made in the laws, reſpecting the export and import of grain, had given a ſpring to the exertions and induſtry of the farmer: an advance in the price of wheat, was the infallible conſequence of the change. Much land was brought into cultivation for wheat, which, prior to that period, had either remained in paſture, or been employed ſolely for raiſing oats; the return being ſuch as would not repay the farmer for growing wheat. At the ſame moment, advance of rents, with great increaſe in the taxes, preſſed ſo heavily as not only to compel greater exertions, but to point out the neceſſity of having recourſe to a ſuperior ſyſtem of cultivation to ſupport thoſe additional burdens. The check ſuſtained in our manufactories and foreign commerce, has operated to deſtroy the deluſion under which the nation had long acted, and contributed to prove the importance of agriculture, and that the ſtrength and riches of a country are not conſtituted ſolely by foreign trade. Happily, we have been undeceived with leſs loſs and miſery than moſt commonly are attendant upon great and important revolutions. The importance of agriculture is univerſally felt, and the reſult has produced a general ſpirit of improvement, in every part of the empire.

How fortunate muſt every thinking mind eſteem the happy lot of Great Britain, compared with the reſt of the world! Whilſt war has ſpread devaſtation and miſery over the fineſt parts of Europe—not a hamlet, not a village of this favoured land, which does not preſent ſtriking marks of improvement. Let me aſk the oldeſt, the moſt experienced, if what has paſſed within their recollection,—if the hiſtory of former times, ever exhibited ſuch proofs of energy and exertion, or afforded any thing to compare with the advances now making in agriculture? The neceſſity of the times, that impoſed ſuch heavy burdens of taxation, has inſpired a ſpirit alſo which will, I truſt, not only carry us through the arduous conteſt, but leave the nation poſſeſſed of means, if wiſely and honeſtly directed, of improving the ſituation and comforts of all ranks, from the peaſant to the prince. It is impoſſible not to feel the protecting hand of Providence, which has, in ſo ſhort a time, enabled Great Britain to produce the grain requiſite for her own ſupport. But a very few years ago (ſince the

the commencement of the present contest), in prosperous seasons, a twelfth part of our consumption was imported; in the two years preceding the last, a twenty-fourth; in the last, though there was a failure in the barley crops, likewise in those of potatoes and pulse, with losses from a bad harvest, the pressure has not, except in some parts of Scotland, been severe. British grain (most providentially for us) has been found sufficient to answer all our demands.

The export of grain from Ireland has greatly increased. Much are we indebted to the improvements of our sister kingdom. The benefits derived by Great Britain from Ireland, must induce a cordial and hearty wish, that wise and enlightened measures were adopted, to give full scope and energy to the cultivation of that most valuable part of the empire. We may adduce, as a proof of the general spirit of improvement, the passing of eighty-two acts of enclosure in the last session of Parliament.

Amongst the various causes which are at this moment contributing so materially to the improvement of the counties of Cumberland and Westmorland, it would be inexcuseable not to notice, or omit paying the tribute of praise, so justly due, to the general disposition evinced by the great landed proprietors, in favour of enclosures of wastes, and commuting tithes. Nor can we overlook a still more important source of general benefit, which will spring from the liberal policy of emancipating the arbitrary and customary tenures. The Earl of Lonsdale could have adopted no measure more calculated for the general advantage of the two counties, or which has a stronger claim to their commendation.

We may justly remark Mr Wakefield as one of the first and greatest improvers in Westmorland. He has made a surprising change in the appearance of his extensive property at Breeks-Hall. There is something very singular in the history of this estate. It was sold, thirty years ago, for nearly 9000*l.*, and five years since for the same price; notwithstanding the possessor had expended considerable sums in fruitless endeavours to improve it. Thus, whilst all other properties, within the same period, were doubled in value, and many considerably more, this one made no advance whatever. No wonder it should be supposed to be under the curse of barrenness. The good sense and judgment of its present proprietor, soon discovered that it was destroyed by the effects of water, and was entirely incapable of improvement till it was effectually drained. This has been done to a considerable extent; and every acre drained is immediately rendered of double its former value. The cost of draining is under 2*s.* a rood. It now bears very good

crops of clover, and all kinds of grain. The farm yard is very complete, and has every possible convenience for tyeing up ninety head of cattle: these are wintered on the same system Mr Hetherington adopts.

There are upon this farm 40 acres of turnips under most excellent management. Mr Wakefield is determined to adopt a system of soiling, which will enable him to add considerably to the scale of his improvements.—The plough had never, formerly, gone deeper than five inches; the soil is now turned up from ten to twelve, which is found to have a most admirable effect. Mr Wakefield has it also in contemplation to irrigate about 50 acres. When his improvements are completed, the value of his estate will be more than doubled. Fortunately this property has fallen into hands possessing spirit, good sense, and ample means, to make these judicious and advantageous improvements; which will not only amply repay the proprietor, but afford an example highly interesting and beneficial to the public. It would be much to the advantage of such gentlemen as are engaged in extensive cultivation of waste lands, to pay particular attention to what Mr Wakefield has done. In wet lands, unless draining precedes, all other attempts at improvement will fail; and after the parties have expended considerable sums, they will have the mortification to find not only their time and money thrown away, but their ground deteriorated.

The increase of grain from what was recently waste, must prove a source of great and general benefit. The market of Kendal alone may expect, this year, upwards of 4000 quarters of grain from the Haversham enclosure.

The turnip crops, between Appleby and Temple-Sowerby, were generally excellent, though the culture was slovenly. They are before other districts in the extent and growth of this valuable root. They have yet, however, to learn, that besides the increase obtained by the cleaning of turnips, the advantage to the succeeding crops of barley and clover can scarcely be estimated.

The Rev. Mr Philips, the vicar of Appleby, has cultivated lucerne with much success; and corroborates the great advantages of this plant. Unless the ground be perfectly clean it will not answer; and where hands cannot be commanded, I would not recommend it. By good management alone it is made productive.

Mr George Atkinson, of Stain Gills, has accomplished a great deal in a very short period, and brought his farm into a very clean and good state of cultivation. His crop of Swedish turnips are the best in the country. To have a clean farm will exhibit something new in that district. I am satisfied, however, he will not be long without imitators; for his crops, in consequence of his superior management, will be so much better than

than his neighbours', as to awaken attention to their own interest. Mr G. Atkinson has drained a great deal; the benefit of which is very apparent. The cost of lime is such, as to induce him to make but little use of it. He has resolved upon adopting soiling, in order to facilitate his means of increasing manure, as well as for turning his produce to the greatest advantage.

Of intended improvements, none appears more praiseworthy, or to reflect greater credit on the individual, than the proposed irrigation of a considerable plot of ground (belonging to Sir Philip Musgrave), which joins the river Eden, by the present farmer, Mr Richardson of Culgaith. So spirited an improvement, undertaken at the sole expense of the tenant, cannot escape the notice of the proprietor, or fail of insuring him the reward of such meritorious conduct.

Many of the new enclosures of Inglewood Forest, in the neighbourhood of Penrith, have most weighty crops of turnips. One cannot but lament there should be any drawback from the pleasure such a sight occasions, by the dirty and neglected state they are in.

Mr Machell appears to have accomplished a great deal, in a very short period, upon his farm at New Plains. I was so unfortunate as not to find him at his farm, which prevented my examining what must be so interesting to every friend to agriculture. A few years will exhibit as striking a change in the face of the country between Penrith and Carlisle, as has ever been made in any part of the kingdom.

Much is likewise doing on Broad Field. Mr Oliphant is making preparation for extensive improvements; and, judging by what he has done, I doubt not he will adopt a judicious method of bringing this waste into cultivation.

Mr Brougham has displayed great spirit, and accomplished much. Fifty acres of most thriving plantation surround his property, and will add much to the ornament, value and advantage of his farm. Whilst I express my admiration of Mr Brougham's spirit and perseverance, he must excuse me if I entertain some doubts of his systems being the best calculated to carry his own meritorious intentions into execution. Draining appears as necessary for his land, and would be as advantageous as it has been found on Mr Wakefield's. Most heartily do I wish him success; and greatly shall I rejoice to find I have misconceived, rather than he has mistaken, the nature of his soil.

I had an opportunity of being again gratified with the view of Flin Hill, the farm of Mr Yarker. This hill, which, in its former state, would have been too dear at 4*l. per annum*, has, this season, produced a crop worth 400*l.*:—five acres of potatoes,

worth from 20*l.* to 25*l.* per acre; thirteen acres of oats, five of them admirable—many of the stems had three hundred and twenty grains on a single stem; ten acres of clover, from which forty-seven cart-loads of hay was produced on the first cutting, the second proving a tolerable crop; six acres of turnips; two acres of fallow. Mr Yarker's brother has great merit, likewise, in the improvement he has made of waste ground. Two such meritorious examples, it is to be hoped, will have their effect upon the neighbouring country. Low Furness, for its extent, is as rich a plot of ground as any in Britain; and, with equal truth, the husbandry may be ranked as strikingly defective as the soil is excellent.

At Hill Beach farm much has been done: the farmer had, this year, eighty acres of turnips, or a sixth of his farm, in green crop; but, for want of proper convenience, he can neither turn his turnips nor clover to the best account; and unless that defect be remedied, he will fall deficient in producing manure, and it will be impossible for him to continue his present system.

Mr Ormandy of Glison Castle soiled, this year, an acre and a quarter; fed eight horses, for six weeks, on the first cutting; nine, for the same time, on the second; and will be able to cut it again. Being asked, what he considered the value of an acre of clover for soiling, he answered, 20*l.* or upwards.

Eight horses six weeks, at 4s. per week per horse					L.	9	12 0
Nine	do.	do.	do.	do.		10	16 0
					L.	20	8 0

I doubt whether there would be many farmers in England able, or who would have been willing, to give so candid and fair an account.

In the first report upon this subject, when I made a similar statement, few people gave me credit for being correct. With such corroboration as this report contains, incredulity can only proceed from extreme ignorance.

I was greatly surprised at seeing several instances of most creditable farming in the midst of the most execrable husbandry, in the same farm. How any person who has had the resolution and perseverance to do any thing well, can endure to see his clover filled with every kind of weed and filth, is what I do not comprehend, nor can I offer any rational conjecture upon it. Abundant crops under bad management, merit the strongest reprehension. In good soil, no fear of an ample return can be entertained: bad and uncertain soils, though they will repay good husbandry, are attended with risk, and claim more allowance;—in the other case, none can be pleaded, nor ought to be tolerated.

The

The reverend Mr Ellerton of Colton proceeds with his usual spirit, and had admirable crops of all kinds. His glebe was, a few years ago, given up by the tenant, as too dear at 20*l. per annum*: last year, he sold to the amount of 50*l.* of carrots, which will convey some idea of what he has done. His example has had a powerful effect in promoting and extending improvement. Mr Knott, his neighbour, has this year green crops that would be remarked and admired in any country, and such as are not to be met with in many districts where the land is of four times the value of his soil, which was twelve months ago a waste.

Near Santon-Bridge there are some crops of turnips under admirable management. As this is the first attempt in this part of the country, the success which has attended it will, I trust, encourage the proprietors not only to perseverance, but to extend their exertions.

Till gentlemen become engaged in farming, they are not sensible of the time, exertion and capital necessary to bring foul and impoverished land into order. It is my firm belief, that nothing tends to benefit the farmer so materially, as the practice of agriculture by gentlemen. Look at those counties where it is little practised by the great landed proprietors, and you will find farming in its worst and lowest state.

Could such a character as that of the late Mr Overman have been drawn forth to act under a system of rackrents and annual leases? Impossible. He saw, under a lease of twenty-one years, there was a fair opening for improving his fortune, by the expenditure of a considerable portion of it on his farm. He did not shrink from making, at his own sole expense, twenty miles of quick fence. With the same spirit and intelligence, he frequently purchased, in one year, manure to a greater amount than his rent, confident it would in time repay him. Alas! this excellent man has paid the debt of nature; leaving a numerous family to lament a most meritorious and affectionate parent,—his landlord and other friends, a man of distinguished probity and superior sense,—the public, one of its most spirited and scientific agriculturists.

Mr Benn of Middleton-place, has made great improvements since last year. The scale of his green crops is much enlarged: the only fault in those of the last season was, as he observed, "In there being too little of them." His cabbages are the best in Cumberland: I did not expect he would so soon have accomplished his determination, of surpassing those at the Schoose. I give him, with pleasure, the credit so justly his due, and conjure him to proceed, not only with a view to the advantage he will individually reap from it, but the effects it will produce upon

his neighbours. They cannot be so blind to their own interest, as not to follow an example that answers so well, and makes such an ample return of profit.

The meadows on which he has made such judicious use of the mole-plough, are trebled in value within the last three years. To those who doubt the effect produced by this simple machine, (which drains at less than 4s. per acre), I strongly recommend their viewing them: the time and trouble this may take will be amply repaid: by comparing the meadows drained, with those that are not, they will be able, at once, to judge of the benefit produced. This practice may be termed, next to irrigation—the greatest improvement that can be made, with the least expense.

Mr Benn has made a small experiment with carrots: his success will induce him to extend the cultivation of this useful and valuable root another year. His potato crop was very good. His turnips will be a weighty crop; the season prevented their being as clean as it is the interest of every farmer to have them. Mr Benn soiled four milch cows, the condition of which greatly surpassed the rest of his stock. This experiment has determined him to carry it to a great extent another season. I think I am justified in anticipating that this practice will be, very shortly, general in the northern counties.

Mr Benn's barley, though an abundant crop, was much lodged. Happy is it when good arises out of the evils of life,—it has determined him to adopt the drill, which will be of great use: no country seems more adapted for this husbandry. I could not, without regret, see so many crops lodged, which would all have been up-standing, had they been drilled.

There is no praise I can bestow which is not justly due to the meritorious exertions, made by Mr Benn and his sons. I feel impatient to extend similar commendations to all his neighbours; not one but may double the value of their property, by trusting their lands, for a few years, with the loan of what may be necessary to bring them into cultivation: the first operation must be draining; till this is effected, nothing essential can be done.

I do fully expect Mr Pickthall will, in the course of another year, demonstrate what may be effected by complete draining.

The crops of Swedish turnips have been, generally, good this season.

Mr M. Hartley of Rose Hill, had a very weighty crop: the general scale of his green crops was creditable. Most sincerely do I wish, that some spirited individual (and no one more likely than this gentleman) would undertake a dairy, on an extensive scale, for the purpose of supplying milk to the town of Whitehaven. Experience enables me to state, the profit would amply repay

repay the expense and trouble. I am equally confident (which will be a more powerful inducement), that nothing more effectually promotes the interests and comforts of the labouring classes of the community.

I look with confidence, that a continuance of the present exertions, for a short period, will exempt Cumberland from the reproach of standing almost invariably distinguished for the highest prices of grain in Great Britain. Who can see, without the most heart-felt gratification, the rich and abundant crops that already adorn and beautify many of the newly enclosed districts? Those numerous acres in Inglewood Forest, at Dalston, and in various other parts of the county, that hitherto furnished a scanty pittance to a few miserable sheep, now producing grain sufficient for the support of thousands of the human species. Nor is our admiration to be confined to what has been reclaimed: the improved system, in various parts of both counties, in the management of old enclosures, challenges particular admiration. What agriculturist will not be delighted to trace improvements in districts where, we have reason to suppose, good husbandry has been hitherto as little known as practised?

Mr Spedding of Mire-House, has, for some years, given an admirable specimen of improved husbandry. I congratulate him that it has not been without effect. The crop of potatoes of his neighbour, Mr Jacob Younghusband of Little Crosthwaite, is highly creditable. I can, with pleasure, declare I saw nothing better done in my whole journey from the south. Whether the merit be due to the father or son, or both, it becomes not me to inquire. I confidently trust, however, the result will determine both not to lose the credit they have obtained.

A very considerable plot of turnips, on Sir Frederic Vane's domain, at Armathwaite, was equal, in crop and management, to any I have seen in the extensive circuit I have made.

To Mr Hodgson of Blennerhasset, great merit is due; and in no situation, in Great Britain, did it require a more determined spirit to commence improvement. The obnoxious weeds that overrun this village and its environs, infinitely out-number what I ever observed. Were the seeds of the docks converted into half-crowns, they would, I verily believe, afford a sum sufficient to *discharge the national debt!!!* Without having seen them, no adequate idea can be formed of their quantity. In such a situation, I should recommend to my worthy friend, after having completely eradicated his own weeds, to adopt the plan of a most amiable and highly respected nobleman (Lord Crewe), who had complained of the injury, both in example and effect, of a very negligent tenant that tolerated every weed:—remonstrance pro-

ducing no effect, an indictment was presented at the Court Baron; the complaint was substantiated, and the culprit fined some gallons of ale. The fine was paid; and the reform, which friendly admonition failed of producing, was most completely accomplished by ridicule. Heartily do I wish to see the experiment tried; and no place seems to demand it so imperiously.

Amongst the most meritorious of gentlemen agriculturists, we must place Mr Boddington, tenant of Millar-Ground, near Hawkshead; his crops of potatoes and turnips, in general, do him infinite credit, and exhibit a specimen of good husbandry where it was greatly wanted; and, I hope, it will not fail of producing its effects in the farmers around him.

The management of Mr Graham of Barrock-Lodge, is such as to challenge the attention of every traveller who passes that road —come from what country he may.

There appears an increased attention to the cleanness of the potato crop in every part of the country. In the district of Wigton, there are many well managed crops of potatoes. It must be a great pleasure to every one who wishes to see the cultivation of the country promoted, to observe the preparations making by Sir Wastall Brisco, Bart. of Crofton, for that purpose. The example of every intelligent and spirited agriculturist, is a source of public advantage.

Mr Dyke's drilled oats surpassed his former crops. His judicious use of the drill must contribute greatly to introduce it into practice in Cumberland. Mr Wood of Cockermouth, and various others, who adopted it in consequence of what they have seen at Dovenby-Hall, have succeeded most completely. Their crops were reported as deserving of particular notice and attention. If my ability was equal to my wishes, I should have had the greatest pleasure in personally inspecting every farm, where improved agriculture has been introduced.

I am perfectly aware, there are many meritorious examples I might, with propriety, have brought forward for public approbation; but the limits of the report neceſſarily circumſcribe what is the moſt pleaſing part of my duty.

I cannot omit noticing a very great impediment and diſcouragement to growing green crops, near to towns; I allude to the ſcandalous depredations committed; which practices, I am concerned to ſtate, are not confined to children, whoſe inexperience might offer ſome apology. It becomes abſolutely neceſſary ſome means ſhould be taken to put a ſtop to proceedings not only injurious to the farmer, but likewiſe to the intereſts of the labouring claſſes. Whenever an improved ſyſtem of agriculture has been introduced, it has been the means of creating a great additional

ditional demand for labour. I appeal to thoſe who are acquainted with the Schoole, for the truth of this aſſertion. If one farm can give bread to ſo many, what would be the conſequence were all lands, adjoining to towns, under a ſimilar mode of management? The plan I ſhould ſuggeſt is either a general aſſociation by the ſociety, or a particular one in every pariſh, for the purpoſe of proſecuting all delinquents: the fine to be 10s., with a power in the magiſtrate to mitigate it to 5s. A very few examples would ſtop the thoughtleſs; and ſociety would have great reaſon to rejoice, that the firſt deviations from honeſty ſhould be detected, expoſed, and puniſhed. What renders ſome ſteps being taken more abſolutely neceſſary, is, that thoſe who are leaſt able to defend themſelves, are the perſons moſt expoſed to depredations. Since the above was written, the ſociety has unanimouſly approved the plan ſuggeſted; and no time ſhall be loſt in carrying it into effect, ſo far as it reſts with me.

The general ſpirit of improved huſbandry, is not confined to any one branch of agriculture. Attention to ſtock is conſidered an object of the firſt importance: much pains have been, and are now taking, to unite early maturity with propenſity to fatten. The ſame qualities are equally ſought for in the breed of ſheep, combined with a ſuperior fleece. The recent improvements of the ſtaple, have been ſuch as not only to equal but to ſurpaſs the wool exported from Spain.

Great advantage has, likewiſe, reſulted from the attention paid to the breed of ſwine; and in no animal is there a greater difference:—whilſt one ſtock is highly profitable, another conſumes, in fattening, as much or more than it is worth.

Theſe are objects very well deſerving of your attention; and the annual exhibition affords opportunity for your making obſervations, and acquiring information, with more convenience, and at leſs trouble, than you could do by any other means. This is no inconſiderable advantage reſulting from agricultural meetings.

The experiments already made in ſoiling cattle, are highly intereſting. The one, the commencement of which you have witneſſed, will, I truſt, be not unworthy of your attention. It has a diverſity of objects in view. It purpoſes, in the firſt inſtance, to aſcertain, as far as one experiment can do it, the diſpoſition of various breeds of cattle to fatten, at the earlieſt period,—what is the conſumption of food and water by different ſtocks,—what are the moſt advantageous modes of proportioning dry and vegetable food: To decide, likewiſe, the weekly advance in weight,—to mark the profit and loſs, which has, in no inſtance, been ſatisfactorily done by any previous experiment,—and to point out the value and neceſſity of economy. The advantage of ſoiling, in preference to grazing, has been ſtrongly demonſtrated by what has already been done.

To

To expect that one, or even a number of experiments, ſhould decide theſe various and important points, is neither looked for, nor deemed poſſible. To change eſtabliſhed opinions is a work of time and perſeverance: could they be effected with the ſame facility which marks the common occurrences of life, the miſchief would be infinite. A great length of time is requiſite to pronounce decidedly on the merit of any experiment: the firſt attempts to carry into effect moſt of the great diſcoveries in arts and ſciences, have been very imperfect; to bring them to perfection has taken a conſiderable period, and ſeldom or ever been the fortunate lot of one individual. To fix the attention of the public, is the main object; and to engage the community imperceptibly to conſider the queſtion, is the utmoſt that is propoſed.

The improvements made in huſbandry implements, have contributed greatly to facilitate the perfect and complete cleaning of land, which is, by all agriculturiſts, conſidered as one of the moſt important objects in farming. Every thing which economizes labour, eſpecially in the operations which are diurnally repeated, is deſerving of the greateſt attention. Whatever may be the firſt coſt of any implement, it is ſoon repaid when in daily uſe: the ſaving the work of a horſe of value fed with oats, cannot be accounted leſs than 50l. *per annum*, eſtimating every article of wear and tear, and allowing for the riſk and decreaſe of value in the animal.

Should we be juſtified in pronouncing the beſt conducted farm in Great Britain, perfect in all that relates to economy of labour, and feeding of ſtock; I can boldly aſſirm, I know of none where great and important retrenchments, in both reſpects, may not be made. I aſſume, and that not lightly, after the beſt attention in my power to give to the ſubject, that both farmers and gentlemen agriculturiſts have it in their power to make great ſavings.

The eye of a good housewife cannot endure dirt; nay, it is so sensitive, as to anticipate, and take measures to prevent it. Who does not admire and applaud such conduct? Is not unproductiveness and waste as repugnant to good sense, as the other is to feeling? How comes it, then, that the eye of a farmer should be so differently constructed, as to bear with the deformity of a thistle or a dock in a rich and abundant crop? Whenever I see such things existing, I am irresistibly led to regret, the individual had not the good fortune to be placed in a situation to have his attention occupied in pursuits more congenial to his taste.

Agricultural meetings should not be considered as confining our views to exhibitions of stock, crops, and implements; but should extend to the whole detail of the use and employment of the produce. In my humble opinion, the individual who displays

displays the most order, regularity, and attention to economy, is the person to whom the palm for good husbandry should be awarded. What is effected solely by expense, creates no emulation; what springs from attention, order and arrangement, commands admiration; and there are few who can refrain, when they see things well done, from feeling some mixture of envy.

The waste, visible in the management of many gentlemen agriculturists, would be an abundant source of profit to a farmer. To witness this in the farms of men actuated by the most honourable and patriotic motives, occasions the greatest regret to the friends of agriculture, and inspires an ardent desire to put a stop to it, by a faithful representation of the real causes of their losses and disappointments: few are in a situation to permit their being so candid, as to speak such unpleasing truths.

Such are the observations which have occurred to me; and it is with the utmost deference I submit them to the Society, confiding in their past indulgence. I may have erred; but I have, on every occasion, spoken my sentiments divested of partiality or prejudice, and with no other view than that of a faithful discharge of my duty, and an anxious desire to contribute my mite in promoting the views of the Society. Few will question the advantages which have already been derived from your association; and I ardently and confidently hope, they will be, every year, more conspicuous.

Detail of an Experiment in Soiling and Grazing.

By Mr Curwin.

(Extracted from the *Proceedings of the Workington Agricultural Society.*)

No object is of more importance to the farmer, than the choice of his feeding and wintering stock; much of the profit of his green crop depending upon the facility with which they fatten, and are kept in condition. The greater the stock which can be maintained, the more manure will be made. If there be one breed of cattle which will, with less consumption of food, gain more than another, that is the stock every farmer should wish to have. Though no proposition can be more self-evident than this, nor calculated to command a more general and ready assent, yet, strange as it may appear, nothing hitherto has been less attended to. There is not one valuable experiment extant upon the subject;—such as have been made are given in so vague and crude a form, as to preclude any practical information being drawn from them.

Amongst

Amongst the many causes of regret for the loss of that valuable friend to the public, and to the agriculture of the country, the late Duke of Bedford, this may be reckoned one. His ardent and indefatigable mind was actively employed on this important subject; and had he lived, he would have ascertained the matter, and, by a series of judicious experiments, have left no doubt on a point of such moment.

Experiments, to be useful, require the whole detail to be given. The consumption of food lessens as the animal increases in fatness: it is therefore impossible to form any just calculation from a portion only of the time of feeding;—repeated statements of weight are necessary to determine the progressive advancement, and to mark the period when there is no longer a gain adequate to the food consumed. Advance of markets may counterbalance and make up the loss on this head: no particular rule, therefore, can be fixed as to the time of selling; but every one must judge from the particular circumstances of the case. It is of great consequence to the farmer to know the relative worth of his respective crops, and what advance he can make upon each, in order to decide upon their value.

These subjects were first suggested to me by that spirited and intelligent farmer, Mr Bates of Halton Castle; and the importance of them appears in my view to increase, from the little I have done in the course of this summer, with a view of determining the comparative increase of weight that may be obtained by soiling and grazing. The little I have learnt augments my desire of proceeding; and I flatter myself, the experiment I have undertaken, and of which you have seen the commencement, will tend to throw some light upon the subject. In the mean time, I beg leave to lay before the Society, the result of the trial in soiling and grazing for fat.

In all experiments, there is much attention requisite not to suffer one's self to be deceived: for, whether the public be misled intentionally, or for want of proper caution and care, the effects are the same, though the motive may be widely different. The strongest reprehension is due to error, from whatever cause it proceeds.

The experiment was made between two Kyloes. The one was ten or twelve years old, and had had a number of calves; the other grazed, was four years old, having had no calves. The advantage was supposed to be wholly in favour of the younger animal. It appears reasonable, that the period most favourable for fattening, should be as soon as the animal had arrived to its full growth.

Experiment

Experiment made to determine the respective increase made by Soiling and Grazing, commencing the 14th of May, and concluding the 1st of October 1808, being a period of 140 days.

Soiled Kylo weighed *(first weight)* 66 stone.
Grazed Kylo weighed (ditto) 57.

KYLO SOILED.

Date.—May 14.	June 27.	Aug. 4.	Aug. 23.	Sept. 6.	Oct. 1.
Weight.—66 st.	74 st.	74 st.	77 st.	78½ st.	82 st.

No.	No. of days betw. each weighing.	Increase in each period.	Aver. gain of whole per day.
		st.	*lb. oz.*
1	44	8	2 8
2	9	0	0 0
3	29	3	1 4
4	19	1½	1 1½
5	14	1½	1 8
6	25	2	1 2
	140	16	1 9½

Food Consumed.

No	Periods.	Daily.	Total.
	days	*st.*	*st.*
1	40	7	280
2	30	5	150
3	70	4½	315
	140		745

A considerable deduction must be made from the apparent gain of the second period of weighing. I should suppose one might strike off all above what appeared to be the average gain upon the third period of weighing, when the animal may be conceived to have taken fairly to feeding. There appear the strongest grounds for believing that it is weight of entrails, not of carcass; as the gain of the first fortnight bears no proportion to any subsequent one. When confined, the animal digests his food less rapidly. Upon this principle, I strike off 3 stone 13 lib. in valuing the soiled kylo; and after the same rate in the estimate of the long-horned and other soiled kyloes.

	l.	*s.*	*d.*	*l.*	*s.*	*d.*
Increas'd wt. of soil'd kylo, taken at 12 st.						
1 lib. at 4s. 8d. - -	2	16	4¾			
2d. per lib. between lean value and fat -	7	14	0			
				10	10	4¾
745 st. clover, at 1d. -	3	2	1			
280 lb. oil-cake, at 1d.	1	3	4			
30 st. of chaff - -	0	2	6			
				4	7	11
				L. 6	2	5¾

*** All the animals soiled drank about two gallons of water per day, except when the clover was cut and brought in wet.

KYLO GRAZED.

Days grazed.	Total Increase.	Increase per day.
140	9 *st.* 9½ *oz.*	15½ *oz.*

	l.	*s.*	*d.*
Increase of carcass (loss taken at 2 st.) 7 st. 9 lib. at 4s. 8d. per st. -	1	15	8
2d. per lib. on first weight	6	13	0
	8	8	8
1 acre of grass (I think insufficient)	4	4	0
	L. 4	4	8

The soiled kylo pays nearly 3d. per stone for the clover consumed, or after the rate of 33l. 12s. 6d. for an acre of 23½ tons; the grazed kylo pays 8l. 8s. 10d. per acre. The manure in soiling is supposed equal, at least to the labour. What allowance, if any, should be made for the manure scattered by grazing, I am not prepared to say. The grazed kylo was thrown considerably back by the red water; the soiled kylo lost nine days by being removed into too warm a shed. It seldom happens dissimilar objects can be brought into perfect comparison. I shall fairly state the facts, drawing the conclusions that strike me;—leaving every one to exercise his own judgment, and either to receive or reject them.

Result of Slaughtering the two Kyloes.

SOILED.

When taken from food.	24 h. fasting.	72 h. fasting.	total loss before killing.
Weighed.—82 *st.*	75 *st.* 8 *lib.*	69 *st.* 9 *lib.*	12 *st.* 5 *lib.*

	st.	*lb.*
Carcass - - -	45	7
Loose fat - -	7	3
Blood - - -	2	3
Feet - - - -	0	13
Paunch, water, &c.	7	1
Head, heart, &c.	2	6
Hide - - - - -	4	4
st.	69	9

Supposing the calculation of weight to be made, as I believe is the case, when the beast has been fasted, and in a state proper to slaughter, the kylo will have done well.

	st.	*lib.*
Carcass -	52	10
Offal - -	16	13
st.	69	9

This Kylo leaves a profit, per day, of 10½d.
Grazed——————————— 7½d.

GRAZED.

Weight on food.	After being fasted.	Total loss.
66 *st.* 9½ *lib.*	55 *st.* 9 *lib.*	11 *st.* ½ *lib.*

	st.	*lb.*	*oz.*
Carcass - - - - -	36	8	8
Loose fat - - - - -	4	1	8
Hide and offal - - -	14	13	0
st.	55	9	0

	st.	*lib.*
Carcass -	40	10
Offal - - -	14	13
st.	55	9

A further Experiment was made with a long-horned Cow, Eight or Nine Years old, which had had several Calves.

Date.—	July 11.	Aug. 3.	Sept. 7.	Oct. 1.	Oct. 17.
Weight.—	75. st.	84 st.	86 st. 7 lib.	88 st.	89 st. 5 lib.

No.	No. of days betw. each weighing.	Increase in each period.	Aver. gain of the whole per day.
		st. lb.	*lb. oz.*
1	23	9 0	5 7
2	35	2 7	1 0
3	24	1 7	0 14
4	18	1 5	1 0
	100	14 5	2 4

Statement of the Expense and Gain.

Increased weight (deducting 7 st. 1 lib.) 5 st. 13 lib., at 4s. 8d.	*l.* 1	*s.* 7	*d.* 8			
2d. per lib. between lean value and fat - -	8	15	0			
				l. 10	*s.* 2	*d.* 8
764 st. clover, at 1d.	3	3	8			
300 lib. oil-cake, at 1d.	1	5	0			
50 st. chaff, at 1d. -	0	4	2			
				4	12	10
				L. 5	9	10

Food Consumed.

No.	Periods.	Daily.	Total.
	days.	*st.*	*st.*
1	32	9	288
2	50	7	350
3	18	7	126
	100		764

The first period of increase goes strongly to establish the principle I have adopted, as to estimating the value of the increased weight from the third period of weighing.

Result of slaughtering the long-horned Cow.

Weight from food. 89 *st. 5 lib.*		When killed. 80 *st.*	Total loss. 9 *st. 5 lib.*	
	st.	*lib.*		*st.*	*lib.*
Carcass - - - - - -	46	5	Carcass - - - - - -	49	12
Loose fat - - - - -	3	7	Offal - - - - - - -	30	2
Blood - - - - - - -	3	0			
Offal - - - - - - -	23	2	*St.*	80	0
Hide - - - - - - -	4	0			
St.	80	0			

Profit per day, 1s. 1d.

It is evident the estimated value of the carcase of the long-horned, is too high: the kylo sells 1d. per lib. at least, dearer. The original weight gives the result of profit, which is little short of

of the kylo; when there is no comparison in offal to carcass. The long-horned consumed a greater weight of food in 100 days, than the kylo did in 140.

The progress of the experiments created that degree of interest that made me anxious to proceed further: in consequence of which, I caused six very moderate three-years-old Highlanders to be tied up, the 27th of June, and fed them for the greatest part of the time with grass, cut from hedges, plantations and walks, considered of little if any value. This experiment is highly satisfactory. How much food of this kind does every farmer waste! and, which is worse, suffers it to seed and multiply weeds! My first object in cutting my hedges, was, to destroy weeds: the appropriation of a great deal of the worst grass to any beneficial purpose, was an after-thought. For the last month they have been fed with carrot and turnip tops. I had no straw to spare, yet they have maintained their condition: One that appears to have failed, took the sore mouth, but has killed extremely well.

Calculation of the Increase upon the six Highlanders.

	June 27	July 6	Aug. 3	Aug. 23	Sept. 6	Oct. 1	Nov. 9
	st.	*st.*	*st.*	*st.*	*st.*	*st.*	*st.*
1	35 —	39 —	43 —	44 —	45 —	48 —	47
2	36 —	41 —	44 —	48¼ —	49½ —	50 —	51
3	37 —	41 —	44 —	46½ —	48½ —	48 —	47½
4	38 —	42 —	45 —	47 —	48 —	50½ —	52
5	38 —	41 —	45 —	46½ —	47½ —	49½ —	50
6	35 —	38 —	41½ —	44 —	45 —	46 —	46½
	219 —	242½ —	263 —	276½ —	283 —	292 —	294

Estimated gain of the six Highlanders.

periods	Increase in each.		Daily Increase.	
days.	*st.*	*lb.*	*lb.*	*oz.*
9	23	7	6	1½
30	20	7	1	7½
18	13	7	1	12
14	6	7	1	3
25	9	0	0	13
39	2	0	0	2
135	74	0	1	4½

Increase of kylo (loss taken at 2st. 5lb.) 9st.	*l.*	*s.*	*d.*			
12lb. at 4s. 8d. - - -	2	2	0			
2d. per lib. on first wt.	4	1	8	*l.*	*s.*	*d.*
				6	3	8
135 st. of green food -	1	7	6			
50 st. of steamed chaff	0	4	2			
50 lib. of oil-cake - - -	0	4	2			
				1	15	10
				£. 4	7	10

Cost of Feeding one Highlander.

Days.	Daily.	Total.		
135	4½ *st.*	607 *st.*	at ½*d.*	£. 1 7 6

Weight of Kylo.

from fd.	Before kill.	Loss
46½ *st.*	39*st.* 6*lb.*	7*st.* 1*lb.*

Slaughtered

Slaughtered Weight.

Carcass	23 *st.*	4 *lib.*	Carcass	26 *st.*	6 *lib.*
Loose fat	3	2	Offal	13	0
Hide	3	5		*st.* 39	6
Offal	9	9			
	st. 39	6	Nearly pays, per day,—8*d.*		

Whatever difference of opinion may arise as to the mode of calculation and the *dates* assumed, I conceive the advantages of soiling to be so apparent, that no one can question them, either as applied to feeding horses, milch cows, or to fattening. The communications received from various quarters, fully prove the rapid progress it has already made. The benefits that will result from soiling to the general state of cultivation, will be greater than I should think it prudent to state (under all the indulgences I might expect) to the full extent of my opinion.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

Thoughts on the best Rotation of Crops on a Light Soil, where the Climate is damp and late.

SIR,

I LATELY happened to get one of your Numbers into my hands, where I observed (as far as I can remember) that it was proposed to give a prize to whoever should point out the best rotation of crops for a light soil, and a late and damp climate, wheat making always one of them. Without entering the lists for the prize, I shall take the liberty of giving my own practice, which is, indeed, somewhat opposite to the general theory, as well as custom, of the country: but I can nevertheless aver, that I find it successful, and that few of my neighbours have better crops, or on so easy terms. The farm is, in general, of a light and sharp soil, much intermixed with pebbles, and of a tolerably good quality. My endeavour is, never to crop it severely; for, if I did, the ground would become much too tender, and, in doing so, the dung or manure would with great rapidity be wasted into the substrata, and of course soon be lost. On the field which I intend to break up from grass, if possible, in the previous year, I lay on about four or five chalders slacked lime per acre on the sward, though it happens, sometimes, that this cannot be accom-

plished. The lime renders the ground free, and tenders the herbage. I give it a single furrow in October, or early in November, and sow it with wheat; harrowing it in as rapidly thereafter as possible, and giving it somewhat more seed than after fallow or potatoes: the return is in general from nine to eleven bolls per acre. The second crop is potatoes and turnip. In preparing the ground for that crop, I gather off the quickens and root-grass, making these articles into a compost, with as much lime as to rot it sufficiently. The potato and turnip lands get all the dung of the farm, and the crops turn out in general remarkably well, being kept clean at very little expense, on account of the quickens having been previously gathered off. My third crop is potato-oats, or barley, with which grass seeds are sown; and to it the rotted quickens are applied, which greatly aid the barley and grasses. These are generally cut for two successive years, and afterwards pastured four years. By this mode, my expense for manure and labour is not great, while my crops are all good. The practice of sowing wheat on a single furrow from old leas, I know is reprobated by many; and, were my soil either heavy loam, clay, or inclining to till, I would by no means prescribe it. But I will venture to say, that, on a light soil in good order, and well matted with grass, it is in a better state for wheat (which delights in a firm compact soil) than even after a fallow. My practice is, to plough in oats and barley, in place of sowing in the usual way. The advantage resulting therefrom is, that, from the increased weight of cover thereby procured, the grain does not lodge: in fact, it is giving to light land the benefit of a heavy soil. There are some farmers of opinion, that cutting hay for two successive years is scourging the ground; but experience leads me to form a different opinion. It is an undoubted fact, that I have for ten years cut a crop of hay from dry meadow, as it is called, without manure; and had generally from 150 to 200 stones per acre; and on breaking it up afterwards, had a heavy crop of oats. The land was not naturally rich, but in pretty good order when laid down.

G. J. D.

QUERY.

WHAT may be the expense of enclosing 200 acres of land, either in Berwickshire or East Lothian, supposing the situation of the land to be square, and that the whole is divided into eight enclosures of 25 acres each; the same to be enclosed with stone walls, lipped with lime, and seven quarters in height?

BRANCH

BRANCH II.

Review of Agricultural Publications.

Result of an Inquiry into the Nature and Causes of the Blight, the Rust, and the Mildew, which have particularly affected the Crops of Wheat on the Borders of England and Scotland. By Sir John Sinclair, Bart. M. P. &c. Edinburgh, Constable & Co. London, Cadell & Davies. 1809.

In a season of such unexampled distress to the growers of wheat, when pestilence, blasting, and mildew, raged through the land, threatening destruction to the crop, and famine to the people,—the respectable President of the Board of Agriculture could not remain idle and unconcerned, or suffer these calamities to pass by, unheeded and unobserved. From the treatise before us, we observe with satisfaction, that Sir John Sinclair, whose talent for investigating rural and political subjects is sufficiently established, has not, on the present occasion, either neglected his duty, or disappointed the expectations of his friends. On the contrary, with that diligence and activity which strongly mark his character, and constantly insure success to his proceedings, the moment that information reached him of the calamitous situation of the wheat crop, Sir John circulated various queries among his agricultural correspondents; all tending to elucidate the nature and cause of the diseases to which wheat is liable, and to ascertain how, and in what manner, these diseases might afterwards be best prevented. He also visited and inspected the wheat crop of the several districts where disease raged with the greatest virulence, and, in short, took every step which could be taken to throw light upon the subject which occupied his attention, and which, confessedly, was one of the first importance to the public welfare. In the present publication, we are favoured with the result of his Inquiries; and he has added to that favour, by presenting us with a copious Appendix, containing much interesting information, received from his correspondents; the whole serving to throw more light upon the diseases of wheat, than has been hitherto furnished by any other writer.

Though we highly applaud Sir John Sinclair for attempting to ascertain the nature and causes of the diseases of wheat, and the most suitable remedies, because no subject was more deserving of hi sattention, we are very apprehensive, that the diseases of last year must be ranked as incurable, and of so virulent a nature, as

to be equally as much beyond the reach of human assistance, as a galloping consumption, or confirmed water in the chest, are in the human frame. Some of these diseases were new, therefore imperfectly understood; and many of them were of a complicated and abstruse nature, presenting symptoms quite different from those formerly known in this country when the wheat crop was in a diseased state. The worst sort of disease neither proceeded from rust nor mildew. In fact, the parent plant decayed, and, in many instances, died before the young grain had assumed a perfect shape; of course, the death of the parent necessarily prevented the young grain, or progeny, from making the slightest improvement afterwards. It was evident, that the young grain, in many cases, did not get beyond what may be called a state of *embryo*; while, in others, what may be considered as conception had not taken place, or, at least, if it had taken place, was followed by abortion. We offer these remarks, in illustration of what is stated respecting the complicated and abstruse diseases of last season, and not with the slightest view of impairing or lessening the merits of Sir John Sinclair, when endeavouring to investigate them.

In a former volume, when examining the doctrines of that respectable gentleman and eminent philosopher, Sir Joseph Banks, we took occasion to explain our sentiments on the diseases of wheat at considerable length; and maintained, that every disease to which wheat is liable, (that of smut excepted), proceeded from an unhealthy atmosphere; and that heavy rains, or continued wetness for any considerable length of time, when the processes of conception or maturation were going forward, necessarily occasioned mildew, or some other disease; and that the consequences of disease were either less or more fatal to the crop, according to its healthiness at the time, and to the stage of its growth when the hostile weather commenced. These opinions were greatly strengthened by the circumstances of last season. In no year has the wheat crop of this country appeared more healthy and flourishing, especially upon loams and clays, than in the last one, at the time when rainy weather set in. The ear was large, and had blossomed in the most complete manner. The fœtus of the young grain was in general finely formed, and in some cases had half arrived at the stage of maturity. From these circumstances, a pleasant and agreeable prospect was furnished to the farmer; though, unhappily, his hopes of receiving an abundant crop were in a little time most completely disappointed. The rains, which commenced nearly over the whole island on the 24th July, and continued, with little intermission, till the 13th August, being accompanied with close, warm weather, engendered a kind of putridity in the atmosphere, highly pernicious to vegetable life.

By

By consequence, every field of wheat suffered. With some fields, particularly those situated upon the sea-shore, a partial loss was only sustained;—with a majority, the loss was something like one third of an average produce;—but with others, the loss was almost a total one;—a circumstance never before known in this country, so far as our recollection reaches. Many fields did not return half a crop, even where neither blight, nor rust nor mildew, were discernible. No doubt, the generality of these fields assumed a blackish or morbid hue at the conclusion, which of course was called Rust by some people: but this discolourment ensued from the juices of the plant having previously become putrid and corrupted; and, evidently, was rather the effect than the cause of the disease which had seized upon the plants, and annihilated their powers.

We are perfectly aware, that many fields of wheat were in a languishing condition before the rains arrived, having suffered from the uncommon heat which previously prevailed; and that such fields suffered most from the wetness afterwards. These circumstances, however, do not in the least invalidate a single opinion which we have either at this time or on a former occasion delivered. That plants are hurt by too little as well as by too much moisture, is an incontrovertible truth; though evil, in the first case, much seldomer happens than in the other. A man may be killed by excessive drinking; and the same effect may be produced by withholding drink from him altogether. Should drink be withheld till a man is enfeebled and weakened, and a plentiful supply be then administered, it is plain, that his body will be more easily overpowered, than if drink had been regularly given in proportion to his wants, and his body preserved in a healthy and vigorous state. Arguing from analogy, we may say, that the wheats on clay and loam soils were in full health when the rains set in, having never wanted moisture,—therefore, only suffered in a partial manner afterwards; whereas, many of the dry fields, which were previously stunted in their growth from want of nourishment, fell victims at the first attack, being feeble before hand, and utterly unable to withstand the force of the disease.

The most of these opinions are powerfully supported by the majority of Sir John Sinclair's correspondents, whose returns are furnished in the Appendix to the Inquiry which now occupies our attention. An instance may be given from the communication of a Mid-Lothian farmer.

'In my opinion, the bad quality and deficiency of the wheat crop this season, are solely occasioned by the wet weather, and want of sun, when it was in bloom. I do not recollect, at any season of the

year, the earth being more completely filled with water, than it was at that period; by which means, I conceive, the roots of the wheat were so over moistened, as to occasion a check or decay in the whole stalk; and by the straw being thus injured, it was incapable of bringing the ear to maturity. I cannot say, that I observed what is called a *mildew*, at any period, upon my wheat, although it is of a very inferior quality to what it has been in former years.

'I beg to add, that my wheat in Ayrshire, this season, is of a better quality than my wheat in Mid-Lothian; which I attribute solely to there not having been so long a continuance of wet and close weather, in Ayrshire, as in Mid-Lothian.' App. p. 50.

Our worthy and respectable friend, Mr Thomas Scott of Craiglockart, one of the most intelligent farmers, not only in Mid-Lothian, but almost in any county, expresses himself distinctly and correctly concerning the general diseases of grain, and particularly concerning those which befel the wheat of last year, in the following letter to Sir John Sinclair. There may be a shade of difference betwixt the sentiments of this truly respectable agriculturist, and those we maintain; but the difference is immaterial.

'The great interest you take in rural concerns, leads me to flatter myself, that the following remarks and observations, will not be unacceptable.

'The middle of August last, I made a short tour through the counties of Tweedale, Roxburgh and Berwick, where the wheat fields were in general in a most deplorable state, especially in the valleys on the rivers Tweed and Teviot. They were all of a brown colour, many of them dead ripe, and not a third filled. I was informed, before setting out, of the circumstance, and that the cause was ascribed to a fly which, upon inspection, I found lodged in a few of the grains of some heads, but not in every head, or even on the greatest part of those inspected. It was a very small animal indeed, very unlikely to be adequate, by its feeble efforts, confined in a grain or two of a head, to have arrested vegetation, even in the stem it was lodged in, much less to have done so in those where it had never approached.

'Damp, hazy easterly winds, have rarely failed to bring rust and mildew on the wheat crops, and retard their filling, in proportion to the time they continued. In such instances, the injury used to be only partial; the crop lodged, where weighty, or destitute of free air; the grain hungry, and part of the head empty; while other parts of the field, where there was more air, or the crop less luxuriant, were tolerably good, and fewer empty husks; or when mildew took place, it was only a few grains that were affected in the same head, which had been rendered stationary, and, in filling, fell into decay, and became a prey to the animals; while all the other grain filled as if no such event had happened. Nor was every head so seized.

But

But the malady which attacked the crops last season, operated in a more masterly style; not only was every grain of a head, but every head, in fields of many acres, reduced to the same level,—not a single stem or grain to be found that had escaped the disaster.

'It occurred to me, that the penetrating pestilent nature of the easterly fogs, had operated upon the valleys of Tweed and Teviot, as early frosts annually do on potato crops, by the sides of streams and marshy grounds. Of this, however, I was soon undeceived, as high situations were in no better plight than those that were lower. Upon inspecting two fields of wheat on the same farm, the one 100 feet higher than the other, so different was it from what I conjectured, that the grain in the lower field, was tolerably well filled; and in the other, a field of six or seven acres, not one grain could be found *one third filled*, or one head in the whole field better than another; the straw being dry, covered with a greenish glaze, as if varnished over. Whatever may have been the cause, the phenomenon bore striking marks of aërial agency, and sudden severe shock.

'Some were of opinion, that the long dry weather, before the rains commenced, had made the crop ripen, before the grain was full; and indeed the inferior quality of what was cut first, from early parts of fields, where there was no want of moisture, was found to be rather worse than better, without the appearance of insects, or animal of any kind, on either stem or roots.

'We not unfrequently ascribe the decay and fading which take place in plants, to insects, and other animals, that lay hold of them in that state, which could not have been there had the plant continued to thrive. Nothing can show it more clearly, than what has so generally been the fate of bean crops, in the end of July, or beginning of August, when sown on thin, heavy, moist soils, partly dunged, and partly not, if much rain fell at that season. The undunged part, rarely failed to fade and decay, becoming black with small insects, and withering away; while the crop on the dunged part, kept thriving, and not a single one of those insects to be seen on a leaf, although the stems of the one were waving across the stems and leaves of the other.

'That insects, and other animals, prove destructive to crops, has, no doubt, been often severely felt, but seldom if ever leaving sensible and satisfactory marks of the means by which the injury was effected; either the tender shoots seem to be all over as if they had sprouted; or if after, when further advanced, total decay takes place, the stem will be found, at one part or other, to have been gnawed asunder, thereby depriving it of its future nourishment from the root. Still, in both these cases, the cause is obvious.

'Plants also fade and decay, and, not unfrequently, from getting either too much moisture, or being deprived of it. By the last, the soil is rendered impervious to the fibres that absorb nourishment, or where enough cannot be had for conveying it. By the first, the fi-

bres are paralyzed, and rendered unfit to perform their functions. Both these last cases admit of remedies. Draining the ground, manuring with proper substances, and good cultivation, will prevent cohesion getting to the pitch it otherwise would, as well as render light gravelly soils more susceptible of retaining moisture, and moist soils more porous, and the plants less liable to be surfeited, being stouter and able to absorb it. Nay, even insects and other animals may be rendered less destructive, by having recourse to particular modes of cropping; but rust, mildew, and the other effects of unfavourable weather, as well as the cause by which the crops suffered so much this year, seem beyond human remedy, and not within man's controul. Such phenomena operate obscurely, and leave great scope for conjecture.

'The diseases that have attacked crops of grain in late years, and the manner these crops fell into decay, have been so unprecedented, as almost makes us suspect this planet had altered its course, or some pestilent vapour haunted the atmosphere. The peas and bean crops in 1807 were, in many instances, partly reduced suddenly to a state of decay; and what continued to vegetate, seemingly unhurt, produced but a scanty increase of hungry grain. No insect was to be seen in either leaves, stem or root; but a small maggot, less than a coriander seed, amongst the mould, such as are frequently found where the roots of plants are mouldering to earth, but neither of size or number in the least degree likely to accomplish what took place in the bean crops that year, more than the small red fly that attacked the wheat crops this year, when vegetation was instantaneously arrested in whole fields, that decayed as rapidly as if the crop had been separated from the roots. Nor was the phenomenon confined to crops of wheat only. All other grains were found to have suffered less or more, and seemingly in all situations. Beans, though better filled this year than last, are far from being so prolific as their appearance promised, or the favourable weather gave cause to expect; and their decay, in the end, was unusually rapid, without an insect of any kind to be found in any part of the stem, or in the ground. Barley underwent the like process, early becoming of a deadish white colour, ripening faster than it filled, and, of course, the grain inferior to that of seemingly more unfavourable seasons.

'The old Scotch proverb may be applied as some consolation for the disaster that befel crops of beans in 1807, that "there is never a great loss without some profit." The ill-filled hungry grain of that season afforded decided evidence of the superiority for seed that well-filled grain has over lean; which was conspicuous in every field where both had been sown, notwithstanding its being so much controverted, a few years ago, by authorities of weight. I made fair trials on three fields, by sowing well-filled seed of crop 1806, and lean seed of crop 1807. That part of each that was seeded from crop 1806, was, from its first appearance, far more luxuriant, and continued so as if the one had been plentifully dunged, and the other had got none.

Over-

Overgrowths, or topers, whether of the animal or vegetable tribes, never fail to keep the advantage in growth they first set out with. The shoots from plump seeds are surely better calculated for pushing in search of nutriment, than what is to be expected of grain of meaner quality. Whatever foundation there may be for this idea, yet, notwithstanding the apathy so prevalent in former ages, we can hardly conceive, that men who discerned and searched out the soils calculated to make the best returns for their labours, as appears pretty evidently from what they had been in use to cultivate, would have suffered themselves so long to be at the unnecessary expense and labour of procuring seed of superior quality, had inferior grain been equally profitable. It may not be improper to remark, that, to avoid one extreme, we often run into another; and as want of enterprize kept improvement long nearly stationary in former times, there is some risk, in our day, at being misled by the force of novelty: therefore, not only should the most plausible inventions be duly proved by experiment, before being to any extent adopted, but all dogmas likewise.' p. 71—74.

We are not altogether sure whether the deductions of Sir John Sinclair from the papers communicated to him, are in all respects correctly given. The first section of his Inquiry may serve to elucidate our meaning.

'There is no plant grown in Britain so liable to disease as Wheat. This may be easily accounted for, from the circumstance of its being introduced into this country from a better climate, where the seasons are more regular and less subject to wet and cold, the principal sources of those disorders to which this species of grain is liable: and where, however strange it at first may appear, the wheat is exposed *even to less heat;* as, in the more southern climates, it is in general ripe or out of danger before the more violent heats commence. From the abstruseness of the subject, the real nature and causes of these disorders have not as yet been fully and accurately ascertained. Indeed, they are sometimes to be ascribed to various causes operating at the same time; and the same plant may often be affected with different disorders; but, on the whole, they have been attributed to one or more of the following circumstances. 1. Heavy rains: 2. Fog or mist: 3. Dew, or gum: 4. Frost: 5. Heat: 6. Lightning: 7. Calm weather: 8. Enclosures: 9. Improper manuring: 10. Too frequent repetition of wheat crops: 11. Soil: 12. Elevation and exposure: 13. Insects: and, 14. Fungi, or parasitical plants.' p. 8.

We have always understood, that the small size of the pickle or grain of foreign wheat, and the disposition which it possesses to absorb moisture when manufactured into bread, proceeded entirely from the excessive heats under which it was ripened. Look at American grain, and say whether it has not been ripened under a much hotter sun than is generally felt in Britain. Look at any foreign grain, no matter from what country it comes, and the like question may be put. We would enter upon the subject at greater

greater length, could there be the slightest reason to suppose that doubts were entertained concerning what we have now stated.

With regard to the first cause of disease, Sir John is quite orthodox. He says,

'The generality of those who have communicated to me the result of their observations regarding the causes of the diseases of wheat, in the course of the last season, have attributed them to wet weather and heavy rains, which commenced about the end of July, and continued, with very little intermission, for several days.* These rains are represented as having prevented the process of maturation from going forward,—as having washed away the *pollen*, or *farina fœcundans*, which prevented the florets from being fecundated;—as keeping the roots of the plants in many soils in so wet a state, that it occasioned an abortion in the ear,—and as frequently lodging the corn; in which case, unless elevated again by the wind, it could never reach maturity: in short, that mildew is owing to wet, damp weather, and the straw being filled with moisture.

'These observations are corroborated by other evidence. For instance, Du Hamel states, that heavy and cold rains, when the corn is in bloom, may hinder the grains being impregnated; as happens under similar circumstances to grapes, which then remain small, and without juice.† According to Tull, long continued rains rot and chill the blossoms of wheat, and prevent their fertility.§ Dr Home justly observes, that too great abundance of juices must occasion stagnation, corruptions, water-shoots, &c.'‡ p. 9, 10.

On the second and third causes of disease, Sir John also speaks correctly. We shall extract the passages which relate to these causes; but are sorry our limits preclude us from examining the remainder.

'Not

* See Appendix, p. 4. "My general opinion is, that a long continuance of wet weather, after the wheat had got into the ear, is "the principal cause of the mildew:" Mr Hall.—"A blight in "the ear, occasioned by heavy showers of rain while the wheats were "in full flower:" Mr Kerr, p. 10.—"On the 22d of July commenced a long continuance of rainy weather:" Mr Low, p. 16.—"The general opinion in this neighbourhood is, that the mischief is "to be attributed to the rains which fell towards the latter end of "July; and the same effect was produced, under circumstances apparently similar, four years ago, in many of the midland counties "of England:" Dr Douglas, p. 23.—"The general opinion is, "that the mildew was occasioned by cloudy and rainy weather;" p. 25.—See also p. 26. 31. ("a kind of abortion takes place in the ear when the wheat is soaked with excessive rains." p. 35.) p. 39. 40, 49, 50, 57. Mr Grierson, p. 49. ascribes the failure of crop 1799, entirely to the wet summer.

† Mill's Husbandry, from Du Hamel, vol. ii. p. 420.

§ Horse-hoeing Husbandry, p. 143. 4th edit.

‡ Principles of Agriculture and Vegetation, p. 166.

'Not only heavy rains, but even fogs and mist have had the same effect of producing diseases in wheat, more especially when the weather is hot, and accompanied by little wind. There are two sorts of those fogs, one of which comes from the sea; which, though very thick and strong, yet, it would seem, that it does not injure the crop near the sea-shore, though it occasions considerable injury in the more inland parts of the country. The other fog arises out of the ground. It is called, in some parts of Scotland, the *ground rook*, (probably reek or smoke), and strongly resembles a thick smoke, arising from the surface of the earth.

'Other evidence supports the same idea. According to Du Hamel, the rust is owing to dry, *gloomy* weather happening when the corn is at the height of its vegetation. Tull observes, that the rays of the sun are necessary for keeping the wheat healthy and strong, as it is doubtless the native of a hot country. Any thing, therefore, that interrupts the rays of the sun, must be injurious to that grain. And in America the mildew is attributed to the fogs and heavy dews, which come on as the season advances. Sometimes the fogs and mists are so close and thick, that the air seems in some degree to have lost its elastic powers, so that neither animals nor vegetables can thrive in it.

'*Dew or Gum.*—It is certain that plants are frequently injured, by a dewy moisture which falls upon them. That moisture may be described, as a composition of all the watery, oily, and saline vapours which exhale from the earth or the sea, which, in the day-time, are kept suspended by the heat of the sun, but, during the cold of the night, fall to the surface of the earth, and are deposited on the leaves of trees, upon the ears of corn, &c.; and being of a clammy and glutinous nature, they check the perspiration of the plant, hinder the circulation of the nutritious sap in the proper vessels, and bind up so closely the tender ears of wheat, as to prevent their growth, and the filling of the grain or pickle. As water-mills are commonly placed in very low situations, and as such dews are usually exhaled from flat grounds, and are generally again deposited upon them; hence, probably, originates the name of *Mildew*. Home describes this dew as a gluey saccharine matter, falling with a summer shower, and blocking up the perspiration of the plant.

'In an interesting communication from the county of Caithness, the mildew is attributed to a close gluish fog, of a whitish colour, which arises from stagnated water or swamps, and discharges itself in the low ground, according to the direction it takes. It immediately stops the vegetation of the grain, if it is in a milky state, and, in the course of ten hours, the ear begins to look bleached, and of a pale white. The straw is affected by it as well as the ear. If there is sunshine next day, the damage is certain; but it does little mischief, if there is damp or rainy weather the day following.' p. 10—13.

One of the means of preventing mildew, strongly recommended by Sir John, is early sowing. If the commencement of rainy

weather

weather could be restricted to the 24th July, (as it was this year), early sowing would undoubtedly be a most effectual preventive; but we have rainy weather often much earlier,—very often by the 1st of July,—sometimes, though not very often, in the end of June: and rains at these times would have exactly the same effect upon early sown wheat, with what they have, in the end of July, upon that sown at the customary time. If we are not mistaken, Sir Joseph Banks, in his small treatise, asserts, that wheat sown in the spring season 1804 escaped mildew. Now, what was that owing to? Why, just because the grain was not in an embryo state when the rains prevailed.

Another preventive recommended by Sir John, is the use of saline manures. On this point, our knowledge is too limited to warrant a decisive opinion. What Sir John says is, however, entitled to respectful consideration; therefore the following passages are extracted.

'In order to ascertain the effect of salts on vegetables, let us consider the advantages derived from the use of it to the animal creation. It certainly affords no kind of nourishment, nor will it digest; for it passes unaltered through all the strainers of the human body; but, as the celebrated Haller justly observes, it is of use, by stimulating the secretions, by promoting a free perspiration, and by preserving bodies from corruption and putrescency. In these respects, vegetables may derive benefit from a moderate quantity of it, as well as animals. If the dews, by the clamminess of their nature, check the perspiration of plants, salt is likely to restore it; for persons who have a clammy skin, owing to their abstaining from the use of salt, have their perspiration restored when they return to the use of that article. It is well known, that when mildew attacks wheat, the straw becomes perfectly rotten: nothing but salt, then, can prevent that corruption.

'If the diseases to which plants are liable are produced by insects, there is reason to hope that salt, used in a judicious manner, would render the juices of the plants too acrid for them.

'Sea-ware, and other saline manures, might also have a tendency to strengthen the plant; and there can be no doubt that plants in full health are better qualified to resist disease, than when they are in a weakly and debilitated state.

'Such were the reasonings in favour of the advantages of saline manures, when fortunately some facts were transmitted to me, by Davies Giddy, Esq. Member for Bodmin in Cornwall, which seem strongly to corroborate that idea. The following is an extract from Mr Giddy's letter, dated the 24th November, 1808.

'Mr Henry Sickler of Gwinear has written to the following effect:—"You know, when I took Trenearth, it was entirely spent. The first thing I did was, to go over it with turnips. The manure was twenty-five bushels of salt, of 84 lib. each, per acre. Wheat followed; and I never had a rusty straw, when the ground was so managed.

managed. One field of six acres, that was not worn out so much as the rest, I put into peas, followed by wheat: the crop rusted so badly, that I had not five bushels on an acre, and the sample was a very bad one. Next, turnips after the wheat, with the usual quantity of salt, succeeded by wheat;—a very heavy crop;—no appearance of rust. This field, in my course of crops, has since been three times in wheat, without the least appearance of rust; nor have I found a rusty straw in any of the fields salted for turnips; whilst on the lands of Coswinsawsen, which were not salted, some have appeared. It never occurred to me that salt prevented the rust, until I saw your letter; but now it strikes me very forcibly, that salt prevents its appearance. I should be very glad if I could speak more fully to the subject. This is all I know at present; but I am determined to try some new experiments for a wheat crop."

'It must be remarked, that the salt used by Mr Sickler was previously employed in curing pilchards, and therefore probably contained some oil. Refuse salt from the pilchard fishery is completely free from duty.' p. 48—50.

The same subject is again noticed in a postscript to the work. Without observation, we shall lay before our readers the queries sent to Mr Sickler, and the answers returned by him to Sir John Sinclair.

'*Query* 1. What is your mode of using salt as a manure for turnips?—*Ans.* I have farmed this estate seventeen years last Michaelmas. It was spent with tillage when I took it, and all the straw carried off from it for a number of years. I went over it first with turnips, winter fallow, twice ploughed in May, sown with 25 bushels of salt, of 84 lib. each bushel per acre, about a fortnight before the turnips are sown. This was my practice, until I went over all the estate, except one field, which I put into wheat without turnips or salt, of which I gave Mr Giddy an account. Since that time, my course of crops is, first, wheat; then turnips on the wheat stubble the following summer; then barley, with seeds for three, four, or five years, before breaking again for wheat.

'*Query* 2. Is it a usual practice in Cornwall, or only adopted by yourself?—*Ans.* It was first introduced by myself, but it is now become a more general practice.

'*Query* 3. What is the kind of salt used, the number of pounds in each bushel, and the price, *duty included*, and what would be the price without the duty?—*Ans.* The kind of salt is what has been used to cure pilchards. The number of bushels, and of pounds in each bushel, already answered. The price, when I first used it, was 6d. per bushel; but now it is from 9d. to 1s., since there is a greater demand for it. Some of it they lay on the fish twice, which is not so valuable as that which is used but once, as there is more of the strength of it spent on the fish. It makes from 1d. to 3d. a bushel difference on the price. There is no duty on this salt. It is bought at home for about 2s. per bushel by the fish curers; but the greater part import their salt from Liverpool, at which place it does not cost them

them more than from 9d. to 1s. per bushel. After it is done for curing fish, an officer examines and condemns it, and then the owners sell it for manure. Before it was made use of in this way, they used to throw it in the sea.

'*Query* 4. What is the weight of the crop produced, and is it equal to that with dung?—*Ans.* I never weighed a crop. The crops equal to any dung crop.

'*Query* 5. Were the turnips drilled or broad-cast?—*Ans.* Broad-cast twice, and three times hoed. The drill has been used by one farmer these two years; and I think it will be in more general use, as it is a great improvement on the broad-cast.

'*Query.* 6. How long is the benefit of the manure experienced; and can dung be safely used afterwards without occasioning mildew?—*Ans.* I have farmed this estate seventeen years, as I said before, and have found it always improving. I have tried it for a corn crop, sown as in Query 1st, and don't think it has so good an effect for that crop, as when mixed with dung, earth and sand; but the effects of it on the clover, in the barley stubble, is astonishing. Some of my land I have not salted these seven years, but can plainly see the effects of it, in the grass and corn, till this time. Some of the land that was not worth 5*s.* per acre, when I first took it, has carried, this last harvest, (the third crop, without any manure for either of them,) forty-eight Winchester bushels of barley per acre. And, to give you some idea of the improvement of this estate, it is now let for 130*l. per annum*, and it only cost me 50*l.*; and, when I took it, no person would give any thing for it. The proprietor kept it in hand one year; in which time he published it four times to be let, and no person attended the survey. Notwithstanding the increase of rent, I believe any man would do very well on it; and I think that the increase in value is owing chiefly to the above management. I never use dung for wheat, but spend it all for potatoes and top dressing.—Never had any mildew on the land that had been salted for turnips, but have had it in land that was never salted.

'*Query* 7. Is the salt found to be an effectual preventive against the mildew, whilst the neighbouring fields are subject to that disease?—*Ans.* The mildew is very bad on some estates in this neighbourhood, but not with turnip farmers. I have inquired at some of them that have been in the habit of sowing salt for turnips; and they all agree, that they never had any mildew where they have sown salt for that crop; but, before, they were greatly affected by it.

'*Query* 8. Does it suit strong as well as light soils?—*Ans.* I never saw it tried on heavy or on light soils but it had a good effect.

'*Query* 9. Has it been tried with potatoes, or any other crop?—*Ans.* Sea-weed always makes the potatoes waxy, and we think that salt would have the same effect, so we never try it.

'*Query* 10. Does Mr Sickler think it calculated *for universal application*?—*Ans.* So far as my experience extends, I think there is no greater improver of land, as in answer to Query 6.

'I wish I could say any thing more satisfactory on the subject, but

but cannot at this time. I mean, however, to make some other experiments on salt. If there is any thing more I could be useful to you relating to our Cornish husbandry, I should be glad to communicate it.' p. 65—68.

The limits of this Number preclude us from laying before our readers any more of this interesting performance; but from what we have already stated, it is probable they will in some respect be capable of appreciating its merits. Upon the whole, we think well of it; though, had Sir John Sinclair trusted more to his own, and less to the opinions of other people, the congruity of the Inquiry would have been more strikingly manifested. We must dissent *in toto* from what is said concerning the injury committed by fungi, or parasitical plants, thinking the respectable author has on that subject mistaken effect for cause; and fallen into an error something like what would happen with the physician who attributed fever to spots upon the body, instead of considering these spots as signs or effects of the disorder which affected the blood or juices of his patient. No doubt, the President of the Board of Agriculture has less faith in *fungi*, than his brother who presides at the table of the Royal Society; because Sir John Sinclair has long kept better company than Sir Joseph Banks. We beg pardon; —we mean, that the former gentleman has associated and conversed more with practical farmers than the latter; therefore, must necessarily be better acquainted with rural practice in every respect. The great merit of Sir Joseph Banks, both as an acute and enlightened philosopher, and as a well-informed gentleman, cannot be questioned; but, with submission, it is no disparagement on him to be ranked as inferior to his brother President in the knowledge of agriculture, because the latter has, for the long period of fifteen years, made that art one of the chief objects of his studious attention. To Sir John Sinclair agriculture is more indebted than to any other man in Britain, without exception. And while at all times warmly disposed to bestow our mite of applause upon that gentleman for his continued and unwearied exertions to serve the public interest, we are equally ready to point out any error he may fall into; conscious that, with him, error is unintentional; and that the alone object which animates his heart, is a desire to promote improvement in an art which he very justly considers as the main prop of national prosperity.

N.

BRANCH III.

AGRICULTURAL INTELLIGENCE.

THE general aspect of rural matters through the winter quarter, was neither pleasant nor comfortable, threatening much injury both to the public and individuals. Frosty weather, uncommonly intense, set in about Christmas, and with some abatements continued to the second week of February, whereby field labour was almost completely impeded; whilst live stock, whether consisting of cattle or sheep, suffered materially. Along with severe frost, heavy falls of snow were also received; and these, at going off, being succeeded less or more by rain, occasioned losses in many places exceeding any hitherto known. In several English counties, damage was sustained by floods, in January and February, to an unprecedented extent. In short, winter, like the three preceding quarters, presented most uncommon weather. The heats of June and July were not more inconsistent with the general temperature of British climate, than the tempestuous storms of December and January.

Grain has not altered much in value since our last publication, the markets having been fully supplied; while not a great deal has been done by those who are in habits of speculating, with a view of obtaining profit afterwards. Indeed, much of the grain is of so indifferent a quality, that small temptation was held out to these dealers to enter with keenness into a trade undoubtedly highly beneficial to the public interest. Without it there would be a scanty supply in summer, when grain is mostly out of the farmer's hand; whereas, when speculation prevails at the time when the greatest part of grain is generally brought to market, there is little chance that scarcity will be felt during the summer months. Whether the stock in hand will be found equal to the summer demand, is a problematical point, and one concerning which it would be the extremity of rashness to offer an opinion. Markets, however, of late, have shown a disposition to advance, especially in the articles of wheat and oats, which are of general consumption: And as a great part of the former grain is of inferior quality, many people dread that the supply will scarcely be equal to the demand of the country before next crop is harvested.

The dependence placed upon America for a supply of wheat, is completely at an end for this year, owing to the embargo, and what is called the Non-intercourse Act. As every port is now shut against Britain whence bread-corn can be obtained, the truth of the opinion first pronounced in the report of the Lords' Committee of Trade, 1791, viz. that Britain does not produce grain sufficient for supplying its inhabitants, will soon be brought to the test. No

doubt,

doubt, many substantial improvements have since that time been introduced into the agriculture of Great Britain, which have occasioned a considerable increase of agricultural produce. The thrashing-machine has at least increased the amount one-twentieth above what would actually have been marketed, had grain continued to be thrashed by the flail; and this, of itself, furnishes a quantity much above any that has been imported in the most disastrous season. Perhaps suitable attention has not been paid to this circumstance by those who maintain, that the island cannot raise food equal to the consumpt of its inhabitants. On the other hand, population has also increased since the period condescended upon; and perhaps, from the increase of luxury, the like population requires, at this time, a greater quantity of grain to meet the existing demand. Without pronouncing any decisive opinion as to these matters, the test already mentioned may be safely referred to. If Britain this year furnishes a sufficient supply for the consumption of its inhabitants, the slightest doubt cannot remain concerning the ability of the country to support itself in ordinary seasons; for the crop of last year, particularly that of wheat, was indisputably much inferior to what is obtained in an average of seasons.

The distillation from sugar still proceeds, and that from grain continues to be prohibited. Perhaps the prohibition, under existing circumstances, is wise and salutary; though, if so in Britain, it must surprise every one to notice that an attempt was lately made to remove it in Ireland. The reason assigned for a removal was, that distillation from grain went on in spite of the prohibitory law, and that no sugar had been used in that country. That this would happen, every person in the least acquainted with the state of Ireland knew very well before the prohibitory law was passed; therefore, by analogy, the proposed repeal should likewise have been extended to the Highlands of Scotland, as suggested by an Honourable Member, where an ounce of sugar has not been distilled, and where distilling from grain goes on something in the same way as usual. The business, in fact, was taken up as a revenue question, and not as one which related to supplying the people with bread-corn, or relieving the distressed planter of the West Indies. There is not a doubt that the situation of the latter was the cause which produced the prohibition. The Minister trusted that sugar would be used by every one as a substitute for grain in the distillery; and if the revenue did not suffer, he cared not whether the saccharine substance, which lulled and intoxicated the people, was drawn from the one or from the other. He found that revenue was not to be obtained from the distillery in Ireland, unless grain was allowed to be distilled; therefore attempted to withdraw the prohibition, notwithstanding that grain is both scarcer and higher priced than last year, when the prohibitory bill was passed. Had the British distillers refrained from using sugar, there is every cause to believe, that the like indulgence would have been held out to them as was most benevolently intended for their Irish brethren.

There is not a single branch of British trade that will meet with more injury from our present restricted communication with foreign countries, than the flax and linen trade; because it will be impracticable this year to procure seed for sowing the ground usually destined for producing that useful and necessary article. It was very consolatory, no doubt, to receive information from the Noble Peer at the head of the Board of Trade (as communicated in a late debate), that plenty of flax seed might be expected from Canada by the middle of next June, at which period the blossoming of the crop would, in common seasons, be at hand. Perhaps the Noble Peer believed it was a matter of little importance whether the plant blossomed at one time or at another, provided it did blossom. But as matters of this kind are rather too deep for us, we shall content ourselves with the following illustration, which is not altogether irrelevant. In 1775, at the launching of a line-of-battle ship at Chatham, the master builder, at the moment when the launch was going to take place, received a card from Mr Bradshaw, then one of the Lords of the Admiralty, stating, that he was on the road with a party of ladies to see the launch, and requesting that it might be delayed for a couple of hours to give time for their arrival. Upon receiving such a card, the builder, who was a man of sense, held up his hands in amazement, and exclaimed, 'Does Mr Bradshaw think that I can influence the tide, or postpone the launch one minute beyond the period of high water!!' and then ordered the block to be struck without the slightest hesitation.

The fine or clothing wools have of late risen greatly in price, owing to the melancholy situation of affairs in Spain, whereby a total stoppage of importation of wool from that country is threatened. The most eminent economists have always entertained an opinion, that too little encouragement was given to the production of fine wool in this country, otherwise the article would not have been constantly a scarce one; nor would manufacturers have been obliged to go to foreign countries for a supply of what was wanted in the finest manufactures. Hitherto, carcass has been every thing; while the fleece has by many people scarcely been thought worthy of attention. The home-bred Merino sheep are understood to produce wool not much inferior to what is imported from the parent country; therefore, were the Legislature to pass an act prohibiting the importation of foreign wools (long ago acts were passed, not very wisely, against exporting our own wools, which acts still remain in force), there cannot be a doubt but that a plentiful supply of fine wool would be instantly raised at home. The price would certainly exceed what has been hitherto given for home-produced wools; because, unless the value of the wool was advanced, farmers would still continue their attention to the carcass, and consider it as the principal object: but, was the price of wool increased in the same ratio with other articles, the attention of the farmer would undoubtedly be turned to produce the finest qualities. This hitherto has not been his object; for, owing

owing to the state of the market, it is well known by every breeder and feeder, that coarse-woolled sheep paid as well, if not better, for the expense of breeding and feeding, than those who carried a fleece of the finest clothing wool.

The landed interest of Scotland seem, of late, to be awakened to a sense of the pernicious consequences of the Property-tax act, and, of course, are endeavouring to procure that redress which the occupiers of land are well entitled to. We observe this disposition with much satisfaction; because this work has been the alone periodical publication in Britain, which ventured to investigate the Property tax, or to point out its consequences to the landed interest. At the first, our feeble endeavours were, like the small cloud in the horizon, scarcely discernible to an ordinary observer, and even treated with contempt by the majority of those who were most nearly interested. We must confess ourselves to be proud, upon observing that the small cloud has spread over almost one half of North Britain, and that our sentiments have in a great measure been approven, and recommended by a general meeting of the landed interest lately held in the Scottish metropolis. It is a matter of very little importance to the tenantry, how or in what manner they are assessed, provided the power of disproval is committed to them. From the first we approved of the principle of what is called the Property-tax Act, though we have constantly lifted up our testimony against the criterion adopted for ascertaining the income of the cultivators of land. An exemption in their favour was never wished or desired, though it was always contended that they had a right to be placed upon the same footing with other members of the community. This will be done when the right of disproving an assessment is bestowed, which in no shape is recognized by the last act, or by any of the acts formerly passed for assessing the Property-tax. If the farmer cannot disprove the rate of his assessment; if he cannot show, to the satisfaction of the commissioner, that his gains and profits for the year are below the sum for which he is rated by the assessor, then there can be no objection against an assumed criterion being used for ascertaining his gains and profits. According to the acts now in force, he may lose every head and tail of his live stock by disease—may have his house and furniture burnt—his whole crop blasted and destroyed by the elements—and yet, still, he is considered as enjoying an income not less than one half of the rent covenanted to be paid to his landlord. It is against these monstrosities that we have constantly argued; because the commissioners are not entrusted with power to make an abatement, even though every one of the above disasters had occurred, and could be fully instructed. In England the act has been administered in a very different manner; and, were it necessary, the difference might be shown to the satisfaction of every one. But there is no necessity to bring forward the English system as a reason for alleviating the Scottish one. The ground upon which the farmers of Scotland stand is strong enough of itself; and their object is merely to

be placed upon the same footing as the rest of the community, namely, to pay the Property-tax according to the amount of their gains and profits. This object is so reasonable as not to be resisted, provided it is clearly and distinctly stated. That success will ultimately be gained, is almost indisputable; though, very probably, the first application may be unsuccessful. This is no reason, however, for the landed interest abating their endeavours to procure redress; on the contrary, disappointment, in the first instance, ought to stimulate them to return to the charge with double force; and, if they are only true to their own cause, it is impossible to suppose that application for relief can ultimately be rejected.

The Essays for the premium offered by a respectable gentleman in the second Number of last volume, were transmitted to that gentleman, as announced in the December Magazine; and we are now authorized to say, that the premium will be divided betwixt the authors of the two Essays, whose distinguishing mottos are—

No. 1. '*At prius ignotum ferro quam scindimus æquor*
Ventos, et varium cœli prædiscere morem
Cura sit, ac patrias cultusque habitusque locorum
Et quid quæque ferat regio, et quid quæque recuset.' VIRG.

No. 2. '*Nil tam difficile est quod non solertia vincet.*'

and that, upon application to the Publishers, the premium offered will be paid accordingly. The names of the successful competitors are entrusted with the Publishers, though it was unnecessary to mention them in a public manner.

The gentleman who offered the above premium, reserves liberty to publish the above Essays with amendments, when he is disposed to take the trouble of revising them. In that case, they shall be presented, not as competition essays, but merely as letters upon the subject proposed to be investigated. If the authors are not pleased with this condition, the MS. copies shall be returned to them respectively.

SCOTLAND.

Letter from Inverness-shire, February 15.

'FROST commenced with us about the 16th December, since which time not a single plough has been yoked, nor an article of farm-work performed, except thrashing corn, and carting manure. The frost was more severe than at any time within the recollection of the oldest person living; and, as an instance of its severity, the Moray Frith at Kessock Ferry was quite frozen over, notwithstanding that the rise and fall of the tide there is considerable. It is said, that a dog passed over the ice, which, if true, was an uncommon circumstance in this part of the country, especially as the Frith at Kessock may be reckoned an arm of the sea. We had not much snow, so the fields were not shut up from cattle, who always made some shift there through the day, to the great saving of fodder. Turnips were a good crop this year, and of much consequence both to the breeder and feeder, serving to keep the young stock of the one in good order, and

and to fatten the more aged cattle of the other. Fat cattle are, however, 30 *per cent.* lower than last year at this time, selling from 5d. to 5½d. per lib. Mutton much the same. The demand for both articles is not great. Wheat sells about 42s. per boll; Barley from 32s. to 35s.; Oatmeal 32s. per boll of nine stones; Potatoes 12s. per boll of 8 barley firlots; Raw hides 2½d. and 3d. per lib. Dutch weight; Tallow 8d. The tanners are driving a fine trade; for, as hides fall, shoes rise, the shoemaker asserting that leather is higher in price than formerly, when the raw article was considerably dearer.'

Letter from a Gentleman near Langholm, Feb. 20.

'SINCE the publication of your last Number, the weather has run much into extremes, from heavy rains to keen frost and snow. The winter has consequently been severe to the stock farmers, who suffered much, particularly in high lying situations, in the course of the last, and beginning of the present month; during a considerable part of which period, several of them were obliged to fly to the low country, or support their flocks by feeding with hay. Sheep stocks, in general, have suffered much from the inclemency of the weather. They are mostly in low condition; and it is feared that the rot will be partially felt in many places, from the effects of hunger, unwholesome food, and the stormy weather they have been exposed to during the greatest part of winter. Should the succeeding spring months prove unfavourable, a considerable loss of stock may be looked for.

'The prices of grain and meal in our markets have been gradually getting up for some time past. Butcher meat has kept pretty steady during the season; but pork has been higher than for some years. The turnip crop, which in general was light in this district, has suffered much from the severity of the season, and is now mostly consumed or destroyed, by the severity and sudden extremes of the weather. Fodder, however, has been plentiful, from the abundant supply of hay and straw produced from the crop of last season.

'The operations of ploughing, and other field labour, have been retarded much beyond their usual progress at this stage of the season; and such fields as had been ploughed before the frosts set in, have, in our light soil, been completely drenched and washed down by the weighty rains which succeeded the frosty weather. A few small patches of wheat were sown last autumn in this district; but their appearance is by no means promising. A high flood, which followed the thaw on the 29th ult., did considerable damage to the valleys and low lying grounds, breaking down *weirs* and mill-dams, and injuring bridges in many places.'

Letter from Glasgow, 21st February.

'THE operations of the field, particularly ploughing, have been much retarded by the severe storms of frost and snow which we have experienced since our last.

'The navigation of the river having been stopt for a considerable time by the ice; and the wind blowing long from the east, prevent-

ed the usual arrivals of grain at our port. Though not less than 30,000 bolls, chiefly oats, from Ireland and the South of Scotland, have arrived in the Clyde since the 1st of December, we do not believe that more than a half of that quantity has yet come to Glasgow. On this account, together with the idea that the Irish distillery bill, which is now before Parliament, will pass into a law, oats have advanced considerably in price. But as the wind has now changed to the west, we expect large quantities forward; and, should no check be put to our importations from Ireland, we see no cause to think that we shall not be abundantly supplied with this grain.

'Our ideas with regard to wheat are not so sanguine. The stock has now become very small; and, unless we receive considerable supplies from abroad, the east of Scotland, or from England, we will soon feel the want of that grain.

'Little barley has yet come to market; nor is there much demand for it. Our supply of beans and peas has been equal to the consumption. Annexed is a state of our prices current.

'State of Glasgow Markets, 21. February.

Foreign Red Wheat,	48s. to 50s.	p. boll of Linlithgowshire measure.
Scotch (new) do.	46s. — 50s.	
American do.	52s. — 54s.	ditto of 240 lib.
Irish Mealing Oats	32s. — 33s.	ditto of 264 lib.
Do. inferior do.	29s. — 30s.	
Scotch Potato do.	31s. — 32s.	ditto Renfrewshire measure.
Ditto Small do.	26s. — 27s.	
English Barley,	39s. — 42s.	ditto Stirlingshire ditto.
Scotch do.	31s. — 33s.	
Irish do.	33s. — 34s.	ditto Renfrewshire ditto.
English Beans,	38s. — 40s.	ditto Stirlingshire ditto.
Scotch do.	35s. — 38s.	
English Grey Peas	37s. — 38s.	ditto ditto ditto.
Scotch do.	35s. — 36s.	
Do. Oatmeal	27s. — 31s.	ditto of 140 lib.
Irish do.	26s. — 27s.	
Fine Flour	82s. — 84s.	p. sack of 280 lib.

West Stirlingshire Quarterly Report.

The quantity of snow which fell this winter was uncommonly great. In the beginning of January and February it lay so deep on the surface of the ground as to render the pasturage inaccessible to cattle, and was blown so much into the hollow spaces of the roads, as to render them impassable, without clearing them out on both occasions—an expedient which is rarely necessary in the Western districts of Scotland. The intervening period was filled up with such rapid alternations of frost and rain, as to suspend entirely the operations of the field.

Although the season has been severe, live stock have suffered little even in the higher districts. During the months of November and December,

December, the weather was commonly fair; and sheep, by enjoying a dry bed, kept free of disease. During the heavy falls of snow, there was a necessity of feeding with hay; and, as the snow fell gradually at first, shepherds had timeous warning to provide against danger. Though much fodder has been already consumed, yet, as the hay was an abundant crop, and the corns harvested in excellent order, there will be no deficiency on this score, unless the spring be very backward, which, after the recent severe winter, there is no reason to apprehend. In the late markets, there has been a great show of draught horses. A general complaint is made of the scarcity of money. The purchasers, though numerous, are rather shy: in consequence of which, the purchases are few, and the prices declining.

Grain, till of late, has been stationary. Less than usual has been brought to market; but the deficiency was fully supplied by the abundance and excellence of the potatoes, and by the large importations of oats from Ireland. The potatoes being nearly exhausted, has produced a greater demand for grain. Prices have begun to rise; and though from 28s. to 30s. is offered for the boll of meal, very little is sold.

The recent discussions in Parliament, respecting distillation from grain in Ireland, has awakened the spirit of monopoly in some of our neighbouring towns. It has been stated officially, that the last crop has been abundant in Ireland; that the price of grain must therefore fall considerably; and that distillation from grain should be permitted to consume the surplus produce, and afford a fair price to the farmer. To this argument no regard is paid by the mercantile interest, although a vast quantity of sugar has been lately withdrawn from the market, and the price has risen 20s. per cwt. in the course of six months. It seems to be taken for granted, that sugar, whenever it comes in competition with grain, should obtain an undisputed preference. The city of Glasgow has taken the lead in petitioning Parliament against the Irish distillation bill. They have been barely seconded by the small town of Dunbarton; and they are amazed that no other has yet followed their example. The Chancellor of the Exchequer had admitted, that illicit distillation was carried on to great extent in Ireland. Our city oracles consider this only as a pretence for permitting distillation, but they can see no force in it;—they think smuggling might easily be prevented, and blame the remissness and feebleness of Government in not doing so. But if those gentlemen would look to the state of the markets, they would find that barley maintains a high price in this country; and if they would take an excursion of a few miles from the smoke of Glasgow, they would find that malt whisky is still plentiful in every village;—that illicit distilleries are very numerous, in spite of the severe penalties against defaulters;—and that it is impossible to suppress the evil, so long as, by the present high price of malt spirits, there is a profit of nearly 300 *per cent.* in favour of illicit distillation.—*Feb.* 21.

Forfarshire Quarterly Report.

The weather, during the preceding quarter, has been very tempestuous and unfavourable for the purposes of husbandry. For two months past, heavy storms of snow and rain have followed each other in succession, which have saturated the ground, and washed the ploughed land in an excessive degree. In consequence of these, also, the damage done to low lying fields on the banks of rivers and streams, by overflowing, has been greater than remembered for many years, and the pernicious effects will be felt for a time to come. The labour performed during the above period has been but trifling, and confined to thrashing the crop and carting out manure. Now that the weather promises better, field labour is going briskly on, on dry land, and in a more forward state than last year at this time.

Turnips are much rotted; and fattening stock have improved little for six or eight weeks. It has almost been impossible to cart turnips off the ground, of late, without poaching it severely. A considerable number of fat cattle are still on hand; and any sales that have been made are about 9s. per stone for good fat.

Fodder does not appear to be scarce, and the crop is turning out rather better than once expected. Good wheat brings from 46s. to 48s.; barley 26s. to 29s.; potato oats 28s. to 30s.; the prices of inferior sorts are various. It may be said that two-thirds of the disposeable part of the crop is sold by the farmer; but a considerable quantity of wheat is still in the hands of grain merchants.

The winter wheats on clay or dry soils look tolerably well; but where the land is loose, on a retentive bottom, their appearance is thin and emaciated; and a considerable extent of the last mentioned description was, in consequence of the favourable autumn, permitted to be sown.

Land rent can scarcely be noted, as few sets have been made this quarter. Labour is rather on the fall.

The late exertions of the farmers of several counties, to get the assessment of the Income Tax on them equally adjusted, have not had the effect of stimulating the farmers of this county to a like effort; but a sort of apathy seems to have prevailed in the business for some time. Our great proprietors are never among the first to urge measures that embrace the interest of their tenantry; though it is strange that, in this case, they should be so blind to self-interest, when their influence might be so beneficially employed in promoting their own and the public good.—21*st Feb.*

Berwickshire Quarterly Report.

The weather during this quarter has been stormy and severe, the wind, for almost two-thirds of the period, having blown from the north and east, with heavy falls of snow, by which the roads were repeatedly drifted up. Thaws were frequent; but as they generally commenced with rain or sleet, the fields have been continually drenched in wetness.

From the above causes, ploughing, and field labour of every description,

scription, is necessarily much behind. Since the 15th current, we have however been favoured with a continuance of fresh westerly gales, which have completely cleared the roads, and brought *dry-bottomed* turnip fields into a fine ploughing state.

Winter wheats and young clovers were much protected by the snow, and are at present looking healthy, though the frost at times was extremely intense, the thermometer having one night (January 18th) stood so low as 10 degrees, or 22 degrees below the freezing point.

Turnips are so much spoilt by the frost, that the few unoccupied fields have been recently taken at a considerable advance. But as this *reserve* is not equal to the deficiency, premature sales are very likely to ensue; while, from the adverse state of the weather, the generality of turnip sheep are in such a backward state, that many of them will not show to advantage at an early market.

Fat markets have all along been pretty steady; beef having brought from 6s. to 7s. per stone sink, and mutton from 7s. to 8s. per ditto, English weight. Sheep in high condition have, however, sold recently as high as 8s. 9d. per stone sink.

Straw fodder has stood little eatage, and will be a scarce article, in many cases, during the spring months. With the exception of barley, which has been rather falling in price, corn markets experienced little variation from the commencement of the quarter till Saturday last, when oats advanced about 2s. per boll. At Berwick market, February 18th, current prices were, wheat, 40s. to 63s.; barley, 27s. to 28s.; and oats, 22s. to 28s. per boll, of 6 Winchester bushels.—*February 21st.*

P. S. The farmers of this county (in conjunction with those of Roxburgh and Selkirkshire) are preparing a petition to Parliament against the present mode of assessing the Property-Tax upon occupiers of land; and a subscription is now going forward to defray the necessary expense.

Morayshire Quarterly Report.

The intelligence which can be furnished for this quarter, is not of an interesting nature. The winter has been more severe than almost any ever remembered, and field labour is much behind; but there is no want of provender; and cattle are in good condition. The quantity and quality of wheat (as was expected) equal an ordinary crop; and, before it was known that the American embargo was to be continued, considerable sales were made at 40s. per boll, and again partly resold. Some parcels have since been bought at 43s., which, according to present appearances, will not pay the merchant, as markets (now that the first alarm is over) are dull both south and north, and will remain so until the London speculators see some new cause to strike in. Oats are a bad crop, and yielding poorly in meal. This exporting county will scarcely supply itself with that article. The principal barley sales are to millers and smugglers of whisky, both uncertain and limited in the extreme.

To

To these people some sales have been made at 30s. to 35s. per boll. Had oats been usually productive, the growers of barley would have had a ruinous year. Should Government again see it right to permit distillation from grain, some material alteration in our Northern act of Parliament is absolutely necessary; for, as it stands, the revenue, the agriculture, and morals of the people, suffer in the extreme; and it is in vain to expect that smuggling will be effectually checked in the North by laws, however rigid, unless licensed stills are tolerated, under conditions to make them an object of traffic, which at present is by no means the case. Much improper opposition has been given to this measure; but as the landed proprietors of the North are, on most occasions, ready to attend to their own and the interest of the country at large, it is to be hoped they will join in a body to get some effectual measures adopted, and not apply separately, as hitherto.

The farmers of this district have large stocks of well fed young cattle for sale, in fine condition for the flesher or grazier; and purchasers will be conducted through the different farms in the county, where the cattle are to be seen, on application to Mr Thomas Craig, at Barmuckity near Elgin.——21*st February.*

Banffshire Quarterly Report.

The unusual mildness of the weather, from the date of last Report till about the 25th December, admitted all the operations of husbandry necessary for the season to be carried on with great facility; consequently ploughing was in a very forward state when frost and snow were received. Another great advantage was derived from a great saving of provender having been made, by the live stock finding subsistence out of doors so long after the usual time of housing. Since the above period, the winter has been particularly severe, and the frost, at different times, more intense than scarcely ever remembered. About the 24th ultimo it was so severe, that the thermometer stood many degrees below the freezing point. Fortunately, at this time, there was a sufficient quantity of snow to shield the wheat and young grasses, which, no doubt, would have otherwise been materially injured. Although several thaws have been experienced since that time, field work of every description has been mostly at a stand. Even carting out of dung was scarcely practicable in many situations. Stall feeding, which is but partially carried on in this district, has been found a difficult task, and attended with little advantage, during all last month; but as cattle were previously in forward condition, this branch has not received so severe a check as might have been expected. Turnips were in general a fair crop; but, in many fields, a large proportion are already spoiled. The yellow, however, have stood the test, and always prove a great acquisition at this season. Hay is a scarce article, and straw consuming rapidly; so that many farmers will be difficulted to keep on their cattle till the usual period. From these causes a considerable slaughter has been going on, and butcher

meat

meat not exceeding 5s. 6d. and 6s. per stone sink. Those who can reach the spring markets expect to be better paid, as it may be presumed the usual supplies will not be obtained from the distilleries under present circumstances. The crop turns out much worse under the flail, than was expected at the period of ingathering. Many of the best fields, both of oats and barley, scarcely give five bolls per acre. It may be fairly stated, that the farmer is not remunerated for this deficiency by present prices, although a great proportion of the community have much ado to keep from starving, money being so little in circulation.—Present prices of grain.– Oats 22s. to 26s.; bear 25s. to 28s. per boll, of 128 Scots pints. Wheat mostly all sold some time ago at 40s.; and what remains is worth about 43s. Best oatmeal 28s. per boll, of eight stone Dutch.——28. *Feb.*

Letter from Falkirk, 21st February.

'THE long continued severe frost, and heavy falls of snow, laid the plough entirely aside for two months past, and confined outdoor operations to carting of dung and dressing hedges. Luckily, however, winter ploughing was previously well advanced. Had the frost gone off without rain, the ground would have been in an excellent state for every spring operation, as it had penetrated, even on firm old lea, to the depth of a plough-furrow, and had consequently rendered the strongest clay tender. But for ten or twelve days, we have had almost constant rain, with tremendous gales of wind; and now hard frost has again returned. If an almost immediate change to settled, open weather, does not take place, spring work must necessarily be thrown far back, and is indeed already so much behind, that every day is now of great moment. Notwithstanding the uncommon severity of the winter, the young wheats do not appear to have suffered. Even those early sown, are no doubt more backward than usually happens at this season; but this may not ultimately prove prejudicial. The idea given in last report, of the sate of the crops in this district, turns out pretty correct, except that wheat is worse than was then stated. Quantity and quality taken together, it is probably not less than a third below a fair ordinary average; indeed, a decent sample of this grain is scarcely to be met with; the present price about 45s. per Linlithgow standard boll. Under existing circumstances, when completely shut out from every foreign supply, and with a crop confessedly defective to a great extent, it at least holds out an encouraging prospect to the country in times coming, that the price has not risen much higher, as might certainly have been looked for, and was undoubtedly the general opinion. It will probably also stagger the confident expectations of those who firmly relied on a great progressive advance in the price of grain, as the sure source from which the astonishing rents lately given were to arise. After such a season, the dread of scarcity, and the improbability of our being able to supply our own demand, will surely at the same time be lessened. Barley, the best crop of last year, has rather unexpectedly maintained its price, considering

considering the effect naturally looked to from stopping the distilleries. This can only be accounted for, by its supplying in some degree the deficiency of the other crops. The present price is about 32s. per Stirlingshire boll. Oatmeal 1s. 10d. per peck; but it is said a very considerable advance on oats has just taken place in the West Country, in consequence of the intended permission to distil from grain in Ireland, whence considerable supplies of that article were obtained. In this district we have plenty of fodder to carry us through the season. Excellent hay can be got from 13d. to 14d. per stone.'

Letter from the District of Carrick, February 21.

'THOUGH the three winter months are generally unsettled and unpleasant, yet it very seldom happens that we have such a continuation of stormy severe weather as has happened since the middle of November. Most old people observe, that this has been the severest winter in their remembrance. There has scarce been two days together without a fall of something, except during the frost, when the ground was covered with snow; and the storms of wind have been almost incessant. It may well be supposed that this state of the weather must have been highly prejudicial both to the grazier and agriculturist. Outlying stock, continually drenched with rain, and having seldom a dry bed to lye down upon, with their bellies full of wet, withered, and sapless grass, could not possibly thrive. Little farm work could be carried on without doors, as the ground was not in a state either for ploughing or carting dung. The principal business consisted in thrashing out the grain, and keeping up a constant regular supply in the market; and as the growth of both straw and hay of last crop was plentiful, there seems to be little dread of a scarcity of fodder. Farm work, in general, is greatly behind; but the season being so far advanced, people are obliged to go on, even though the ground is not yet in a proper state for ploughing. It is generally known that last year's crop was a good one in this district; and it was got secured in the best manner, during three weeks of continued good harvest weather; and I believe our wheat crops suffered less than in almost any other part of Britain; and, so far as is yet known, turn out pretty well, both in the barn and the mill.

'This state of things, to people who cannot, or do not choose to take an extensive view, is extremely apt to mislead. They have seen the markets regularly and plentifully supplied. They see plenty at present all round them; and they will not allow themselves to believe that there is the smallest risk of scarcity. They are beginning, of late, to be undeceived, when they see a buying up everywhere to supply distant markets. And, as constantly happens in every similar case, the price is rising with the demand. Those who are capable of reflecting upon the present political state of Britain, shut out from every country whence grain could come, and who know the deficiency of last year's crop in many districts of the country, are convinced

that

that we ought to husband our stores with the utmost frugality. If it be a fact, that Britain does not supply itself with grain, even in the best years, (and this year will seemingly put it to the test), what are we to expect in a year when the general crop is below an average? Certainly the very best thing that could happen to the country is, that the price of grain should immediately rise very considerably. However the necessity of this may be deplored, yet the expediency of it is self-evident. From what I have said, you will readily infer, that I mean to say that grain is everywhere looking up. As to what we call our sale cattle, that is, cattle either for laying on grass, or for the English market, the season of demand for them is not yet arrived. The shambles have, through the winter, been tolerably well supplied from the stalls; and the price of meat has kept pretty steady at from 5d. to 10d. the lib. of 24 oz. It is unnecessary to quote the price of grain, as it is varying from day to day.'

Fifeshire Quarterly Report.

THE ground, during the last two months, has been almost constantly covered with deep snow; and owing to that circumstance, and the storms of wind and rain which succeeded, it was impossible to plough any ground, except old pastures, till very lately. We have only had three days yet of good mild fresh weather; but the ground is now drying, and getting fast into good order; and, should favourable weather continue, ploughing may yet get forward.

The stack-yards are getting thin apace, though no want of straw. The price of grain continues steady, and with less fluctuation than usual. Wheat 40s. to 45s.; barley 24s. to 26s.; oats 22s. to 26s.; oatmeal 26s. to 28s. The potato crop was excellent and abundant, so that no scarcity is apprehended. The barley has a steady sale, and the want of the distillery has not been felt by the farmer one half so much as was dreaded.

Live stock appear thriving, and in good order, especially where a few turnip has been given. The young wheats and clovers, in general, look well. Pasture parks, yet let, have risen 10 or 15 *per cent.* above last year's rent. Farms for tillage, lately let, have risen 30 *per cent.*

Flax, an article much cultivated in this district, will this year probably, from a scarcity of seed, be almost totally wanting. There was very little sown last year; and, from a wet and unfavourable season at pulling time, little or no seed could be saved.——23. *February.*

Inverness-shire Quarterly Report.

THOUGH the frost remained nearly for eight weeks, the winter quarter cannot, on the whole, be estimated as a bad one, particularly for the stock farmers. Notwithstanding that frost was most severe, yet, as snow did not fall in any great quantity, seldom being above three or four inches in deepness, much inconvenience was not felt, unless what arose from an almost total cessation of field labour. About the end of January, the Frith, from Inverness to Beaulie, a distance of eight or ten miles, was completely frozen over, a circumstance

cumstance which has not occurred since 1740. Turnips have sufferred from the frost, though not so much as expected. Inverness market has been abundantly supplied through winter with excellent mutton, at prices from 5d. to 6d. per lb. Beef is much about the same rates; and, of course, the returns from feeding this season will be trifling and inconsiderable. Provender of all kinds remains in abundance. ——23. *February.*

Dumfries-shire Quarterly Report.

In this part of the country there has not been, for many years, a winter more tempestuous than the last one. The frosts were keen in the extreme, and the snows were blown with violence; but the thaws were moderate, and came in time to prevent the loss of sheep, which must immediately have ensued, if they had not intervened. At the same time, there is no doubt but these extremes have brought sheep into low condition, though it is to be hoped their constitutions are not so far injured, but that a good spring may recover them.

The agricultural labour was got so forward in the autumn, that it may not now be considered behind, notwithstanding the interruptions of the winter. There is yet, however, very little spring wheat sown; but the ground is now beginning to get in order, and must soon be in good condition if the weather continues so dry and mild as it is at present. The loss of turnips, by the extreme frost, is considerable and general, and will make more room than usual for sowing wheat, of which farmers will probably avail themselves, in the view of making up for their loss of turnips. This, however, is a matter on which our best farmers are still doubtful. Whether a good crop of barley, or a crop of spring wheat is ultimately most advantageous, is a matter that deserves consideration, due attention being paid to the consequences of each.

The corn crop of last year has turned out considerably better than was expected. Wheat, barley, and oats have all thrashed out more grain, and of better quality, particularly the oats in the upper parts of the county; yet the demand from the sea-port towns has kept the price at what may be called fair rates. Wheat from 10s. 6d. to 11s.; barley from 4s. 8d. to 5s.; oats from 3s. 6d. to 4s. per Winchester bushel.

The alternate rains and extreme frosts having destroyed most of the remaining turnips, the fed sheep and cattle are now getting fast away to the market, which will probably keep the prices low for a short time. Those who have quantities of Swedish turnips, which root is not injured by frost, have, in such a season, more than an ordinary advantage. It is not doubted but the observation of this will induce many others to increase the growth of that valuable root.

The demand for cattle to go to the South has come on this spring as early as usual. Considerable numbers have been bought up, and at prices which pay the farmer in a reasonable way.

A ploughing match, or competition for premiums given by farmers, and medals given by the Highland Society, took place lately,

lately, in the neighbourhood of Lochmaben. It was well attended; and the emulation it occasioned among the young men appears to have its proper effect. Though there are here farmers skilled in the principles and practice of agriculture, such a degree of knowledge is far from being general among farmers of the inferior class; of course, many ploughmen must be deficient in the interesting business of turning over the furrow in the most advantageous and expeditious manner.——23. *February.*

Ross-shire Quarterly Report.

THE severity of winter has been principally felt in this part of the country, by the unprecedented intenseness of the frost during the greatest part of January. This was prejudicial to a great extent, from its not being attended with snow to afford a covering to turnips and wheat. The consequences are, a very considerable loss of turnips by rotting. The white globes have evidently suffered most; reds, in a partial degree, and even in some cases yellows, are said to have sustained damage. As the season advances, the injurious effects will be more evident, and strongly points out the necessity of attending to sow a pretty large proportion of yellows, and it may be adviseable, again to recur to Swedish, to a certain extent. No market for turnip stock being to depend on here, of course they must have a supply of that root till grass comes.

Wheat was extremely browned by the frost winds, but is now reviving, and scarcely a field but exhibits a sufficient number of plants. Young grass is much in the same state.

Ploughing was so far advanced previous to the commencement of winter weather, that it is just now as forward as in ordinary seasons. The weather, at present, is mild and soft; but, judging from the alternate state it has been in for the last two or three weeks, when we rarely had twenty-four hours alike, it can by no means be declared settled. Turnip stock have done as might be expected. Where there were not stores laid in before the severe frost came on, or a good deal of hay given during that time, very little improvement has been effected. Highland stocks are reported to be in good order; and the effects of winter by no means felt uncommonly severe there.

Corn markets have on the whole been steady. Wheat from 40s. to 44s. per Linlithgow boll. Not above half the ordinary export will take place of that article. Barley and bear find a ready market in the county, wholesale buyers giving from 28s. to 30s. per boll; but, in retail to smugglers, it sells at 35s. to 40s., according to local situation, and length of credit. Potato-oats 30s. to 31s. per 5 firlots; common ditto 25s. to 27s. per ditto. The crop turns out ill in every stage, first in quantity, and afterwards yielding little meal. Unless supplies arrive from another quarter, it is evident there will be a scarcity of meal during summer. Present price 30s. to 32s. per 9 Dutch stones.——23. *February.*

Aberdeenshire Quarterly Report.

IN the course of harvesting last crop, it was clearly perceived, that

that great part of the grain would prove defective, or of inferior quality; and this view of matters has been fully realized by the short return in many places. In others, few complaints are made as to the quality; but, owing to the quantity of light corn or dressings, the quantity is below the expectation of the farmers. The one or the other of these are prevalent, both as to bear and oats, over the county; so that the quantity of disposeable grain will be considerably less than usual.

From the conclusion of harvest to the 10th of December, the weather continued fresh and pleasant. Cattle were kept much on the pastures, and labouring was got far forward; but two months of stormy weather succeeding, has sunk the stack-yards very much, chiefly owing to fodder being still more defective than grain in its usual quality; and if spring does not set in favourably, the difficulties arising from this will not be much less than last year. Hay is from 1s. to 1s. 4d. per stone; and oats with fodder have been sold in many places at and above 50s. per boll. No apprehensions are entertained for the quality of the grain of last crop for seed, as the failure did not proceed from frosts. Fat cattle have generally sold from 48s. to 55s. per cwt., sinking offal: a very considerable stock remains still on hand. Milch cows have also been in request. Turnips have generally sustained little damage from rotting; a considerable proportion of them remain on the fields for consumption. Oats have sold from 22s. to 26s.; Meal from 24s. to 27s.,—the former likely to get still higher; whilst bear has few purchasers, and can scarcely attain the price of either of the above articles. In the price of labour there is scarcely any difference; yet hands are plentier, and more easily obtained, which very much facilitates the purposes of agriculture, the spirit of which is rather increased than diminished. Public works are not in such abundance as formerly. The turnpike roads, where the lines are not finished, are going on rather slowly; and new erections or buildings are much impeded, if not stopped for a time, from the great difficulty, if not impossibility, of procuring wood of sufficient quality.——*Feb.* 28.

Kincardineshire Quarterly Report.

The month of November, and two first weeks of December, were very fine weather. The wheat-sowing in the south part of the county (the only district where it is sown) was got finished in good order. The weather changed about 17th December; till the middle of February, constant storms of snow and wind prevailed, whereby all the operations of husbandry were suspended, except thrashing of grain, and carting of manure to the fields. The last two months have afforded an opportunity of thrashing and carrying to market more grain than would have been done, had the weather been more favourable. Still the grain markets look up; and there is every prospect of their doing so, as the principal part of the grain that the farmers can spare is now in the hands of the dealers and millers. Wheat from 42s. to 47s.; Barley 28s.; Chester Bear 24s.; Potato-

oats

oats 26s. per boll Linlithgow measure. Till of late, there being no less than three different measures for grain in this county, varying more than a peck in the boll, the Justices came to a resolution of appointing a committee to inquire into the different weights and measures used in it. They made a report, which was approved of at the last general meeting, 30th April, and proper people appointed for seeing it carried into effect. It is hoped other counties in Scotland will follow the example, and that uniformity in the measures of capacity will in time be generally introduced.

Turnips have in general kept out well, the snow having preserved them from the frost. The prices of fat cattle are tolerably good; but, for lean stock, there is no demand. Fodder will be a scarce article in the north district of the county; and any little there is to dispose of, has got to a very high price.——*Feb.* 24.

Wigtonshire Quarterly Report.

This district has been visited by a winter of unusual severity, and the husbandman's labours are accordingly much behind. As yet, there have been only a few days of favourable weather; and if that should experience any serious interruption for some time to come, the operations of spring will be backward indeed.

Fat cattle are selling at a tolerably fair price; but the demand for lean stock has not yet commenced.

Corn has been on the advance of late, particularly oats, the present price of which may be stated at 50s. per Galloway boll, of 12 Winchester bushels, for quality weighing 40 lib. per bushel.

The quality of grain, however, is considerably inferior to that of the average of years.

The farmers of this county have it in contemplation to follow the example of their brethren in the county of Roxburgh respecting the Property-tax, the operation of which is becoming grievous in the extreme; but the farming interest are an unwieldy and discordant body, and can hardly be brought to act with unity and spirit. How different from an assemblage of merchants and manufacturers, who, on all occasions where they consider themselves aggrieved, act from a quick and universal impulse, asserting the rights of justice, and defending the interests of their profession! It is surely high time that farmers should begin to imitate the example.——*Feb.* 21.

Tweeddale Quarterly Report.

The feeding stock received full benefit from turnips, till the middle of December, when a severe black frost came on, which impeded future progress. This frost was followed by a considerable fall of snow, and continued less or more till the middle of February, when a favourable change ensued. A great part of the turnip crop, then unconsumed, was destroyed by adverse weather, which obliged many farmers to bring their feeding stock to market earlier than was wished. The flocks on the uplands suffered much during the storm, as hay could not be procured in many places. The Cheviot breed suffered most, especially the hogs or young sheep, which has always been the case with that breed since its introduction into this county.

Prices for fat stock are rather on the advance, though few people here will be greatly benefited thereby, stock being generally disposed of. There is small alteration in the rent of land; but the value of labour has declined considerably. Grain markets have not varied much since harvest, till lately, when the quantity presented has rather been inferior to the demand. With regard to the Property-tax act, the farmers of this county highly approve of the spirited steps taken by the Roxburghshire farmers to procure redress; though, whether from the influence of passive obedience, or from apprehension that relief is not to be obtained, little has been done to support the measures of their more active brethren.——*Feb.* 28.

East Lothian Quarterly Report.

The winter was long and severe; and, from an excess of frost, tillage was stopped, almost in every case, from the 25th December to the 13th February. Field labour, by consequence, was thrown greatly behind, and the most active exertions were called for when fresh weather returned. Some land still remains untouched by the plough, but the quantity is inconsiderable; and should further interruptions be avoided, the spring work of the district will soon be in a forward state.

It is remarked, that some of the winter wheats, chiefly those sown on clover stubbles, are fast quitting the ground; but whether that circumstance proceeds from the use of weak seed, from the late severe frosts, or the ravages of the grub and cut worm, is not yet ascertained. In general, the wheats look well; but it is too early in the season to hazard any decided opinion upon their condition. A large addition has been made to the winter wheats, by sowing a considerable quantity during the last week; and more will still be sown, provided the weather remains dry and temperate. Indeed, the rents of this county are not to be paid without placing great dependence upon wheat; and to the growth of that grain, both soil and climate of the district are in general admirably calculated.

The markets have been well supplied with grain through the past quarter, though much of it has been of an inferior quality. A rise of price has lately taken place; and as the season advances, there is cause to suppose, that the supplies will not only be diminished, but that the prices will also be increased. The wheat crop has turned out to be more unproductive than predicted in former reports; as was fully evidenced by the proof taken last week by the Sheriff of the county, for ascertaining the annual fiars. The quantity then deponed to amounted only to 9095 bolls; whereas at the proof, March 1806, for crop and year 1805, not fewer than 27,194 bolls were sworn to in evidence. Any difference of price which has occurred, will go short way to compensate the actual deficiency of quantity. Indeed, those farmers who had the smallest produce, have almost, in every case, obtained prices not much above those received in the year condescended upon.

A considerable part of the turnip crop rotted, in consequence of severe

severe frost; and were it not for yellow turnip and ruta baga, the generality of feeders would soon be in an awkward predicament. The culture of these varieties cannot be too earnestly recommended; as, without them, the feeder must dispose of his fat stock prematurely, and be at short allowance with his spring stock for several weeks before the grass season arrives.

The Property-Tax act has of late engaged general attention; and the evils felt from the improper criterion assumed in the act for ascertaining the farmer's income, has occasioned a considerable number of the most respectable of the profession to resolve upon seeking redress at the only court where it can be obtained. Every one of them are well satisfied to pay ten *per cent.* of income to the support of Government; but it is supposed unfair usage, to assume a criterion of income which is unfounded in fact, and which cannot operate alike in any two cases. If the evils of the act are suitably described, it is impossible to suppose that it will not be amended in every part which bears harder upon farmers than upon the rest of the community. To suppose the contrary, would be the same thing as supposing that the legislature would commit injustice.

Prices of grain at Haddington on Friday last, were, for wheat, 30s. to 57s.; barley 30s. to 32s.; oats 25s. to 37s.; peas and beans 28s. to 36s., all per boll Linlithgow standard measure. A boll of wheat, peas or beans, is something more than four Winchester bushels; and of barley and oats, about six bushels. The generality of firlots rather exceed the Linlithgow standard; some of them are two and even three *per cent.* larger.——*March 4th.*

ENGLAND.

Yorkshire Quarterly Report.

In this part of the island, the prospect of the poor is discouraging in the extreme. The deficiency in the crops, particularly wheats, begins to be deeply felt. Much barley is bought up for grinding for bread; and much oatmeal is brought from the hill districts, to make up in some degree for the deficiency;—these districts, from late improvements, by enclosing the moors, being now happily enabled to send off a surplus of grain, instead of depending for the whole of their consumption on supplies from the low lands, which was universally the case at no very remote period. Whether, in the event of actual and general scarcity and dearth, arrangements may be made, so as to obtain a supply, in the needful time, from America or any other country, seems at present very dubious. However, one consequence *ought* to take place,—the adoption of measures calculated to encourage agriculture, and the growth of grain in particular, to the utmost possible extent;—which, it still appears to be more and more the general persuasion, can never be permanently and substantially effected, without a radical change in the tithe system throughout the empire. Without this, millions of acres must be condemned to the production of any thing rather than grain, and millions more to a perpetual and hopeless sterility. The best wheat is now at 20s.;

Barley, 8s.; Oats, 6s.; Rye, 10s.; and Beans and Peas, 10s. per bushel of Winchester.

From the uncommon severity of the winter, and heavy falls of snow and rain during the latter part of it, the ground has been in the most unfavourable state possible for every early operation in the spring; so that the sowing beans and peas, as well as of spring wheat, &c. must be delayed to a period later than usual. The weather is now drier, and some ploughs are beginning to stir.

As far as present appearances warrant, the growing wheats are promising, not having suffered so much from the inclemency of the winter as might have been expected; owing, perhaps, to the snow, with which they were generally covered. The turnips, of the common white sorts, however, are almost totally cut off by the frost, to the great disappointment and loss of the flockmasters, who are now mostly compelled to sell off; notwithstanding which, and the expected glut in Wakefield fat cattle market in consequence of it, both beasts about 200, and sheep about 4000, were readily sold at good prices, on the 15th instant. Lean cattle and pigs continue at moderate prices. Fat beasts, in particular, are expected to be unusually dear towards summer, as there is the smallest number put up for stall-feeding almost ever known; the price of food for them, particularly cake, being so exorbitant. Potatoes turned out rather smaller than expected, and are selling at 3s. per bushel. Best beef and veal, 9d.; mutton, 8d. per lib. Hay is still dear.

Good horses are expected to advance in price, and are now selling well. The late massacre among them in Spain is not likely to reduce the value of the surviving stock. But it is 'an ill wind that blows nobody profit;' for the woolstaplers and dealers in fine cloths, particularly broads, are endeavouring, might and main, to take advantage of our misfortunes, by crying up a scarcity of fine wool, particularly Spanish, and thereby enhancing the price of the stock on hand, so as to enable them to sell it off at the *moderate* ratio of two, three, or even four times the fair and usual price. Some steps are taking in London to counteract this barefaced imposition; and certainly, whatever of the sort can be legally done, ought to be generally supported. Report says, that some fine broad cloth has already actually been sold at 3 guineas per yard! It is not understood that much alteration is taking place, in regard to coarse or long wools.

Flax seed is at the highest price ever known; some say, 20 guineas per quarter. But late importations of the article from the Baltic, or elsewhere, into Ireland, as reported, and stated to be the cause of some decline in the price of Irish linens, may not improbably reach the cause here.

In fine, from the forced and unnatural state in which mankind is, and has too long been placed, by the unreasonable duration of the war, nothing can be long depended upon as steady; and folly and knavery continue to be the order of the day.—*22d February.*

Northumberland

Northumberland Quarterly Report.

THROUGH the last quarter we have had alternately heavy falls of snow, and partial thaws, with much rain or sleet; than which, nothing could be more prejudicial to live stock, and particularly sheep. Those upon turnips have made little progress. The mountain sheep are reduced to the extremity of poverty; and it is to be feared that great numbers will perish, unless we have an uncommonly mild and favourable spring.

In consequence of the snow coming on so early, and continuing so long, there is yet much land to plough; and scarcely any spring wheat sown.

The turnips are considerably injured by the frost; and being a defective crop, a scarcity is expected. Of course, the markets will be crowded with fat stock for some weeks to come.

Ruta baga everywhere appears to have received no injury, and is in general an abundant crop. This valuable plant is becoming more extensively cultivated every year, as it is found not only to resist the attack of frosts better than common turnips, but may be pulled, and housed or stacked, before or during any part of the winter, and kept perfectly good until May.

In corn markets there has been little alteration in prices since last report; but, from the general complaint of the unproductiveness of the stacks, it is to be feared that the deficiency will be greater than was expected.—*22d February.*

Lincolnshire Quarterly Report.

THE weather is now very fine, and promises to afford a favourable season for depositing the spring seeds, notwithstanding of the severe storms with which we were lately visited, and the inundations which took place over the whole lower districts of this county. The embanked fens have escaped more than could have been expected, on account of the large drains being so very broad and deep: though, on the whole, more loss has been sustained from the inundations than known in this county at any former period.

Grain markets have been tolerably well supplied for some time past at the following prices. Wheat 90s. to 100s.; barley 46s. to 52s.; oats 30s. to 40s.; beans 60s. to 65s.; white peas 160s., all per quarter of eight Winchester bushels. The butcher market has also been well supplied with beef at 7s. per stone of 14 lib. sink; mutton 7d. per lib. sink; veal 8½d. per lib.; pork 7½d.——*21th. February.*

Cumberland Quarterly Report.

SINCE last report, the weather has been very unequal: severe frosts have been succeeded by violent storms of rain; and every field operation has been much retarded. Fallows are in a very backward state; and a small proportion of the leas has yet been ploughed. Winter tares and wheat, since the cessation of the frost, wear a very hopeful appearance; but the wheat of last year turned out one fourth, quantity and quality considered, below the usual average. Barley will not average more than 24 Winchester bushels to the acre; and the grain, in many parts of the county, is very shrivelled. Oats, on recently

recently enclosed wastes, are very good; but they are in general considerably below par. The frost has destroyed two thirds of the common turnips. Swedish and yellow have escaped unhurt. The *Triticum æstivum*, spring wheat, has answered very well last year. In many instances, if preceded by turnips, and in *open* situations, when sown so late as the 15th of April, it has produced 33 and 35 Winchester bushels per acre. Buck, or French wheat, was an excellent crop, and the most powerful destroyer of weeds, at the least expense, of any other species either of culmiferous or leguminous crops. On upland situations, where the harvest is ticklish, it must be very useful. Horses, cows and swine are all fond of it in a green state. Early sown oats last year weigh better, and are less affected with the smut, than those which were sown late.——*February 27th.*

Letter from Wakefield, 28th February.

'We have real spring wheat on sale, grown last year, in the worst district for mildew, and not in the least affected by that malady. The produce was 50 bushels per acre, from the same land which had produced the like quantity of the same kind of wheat the preceding year.'

Letter from a Gentleman in London, 28th February.

'A new species of barley has been introduced to our acquaintance lately, which is very large in the pickle, without any skin, and is said to produce not less than ten quarters per acre. It must weigh, from appearance, 10 to 15 *per cent.* above the best sorts of English barley. I know nothing of its straw. It is said to be of Indian origin; and to have come to this country from Sweden. Mr Barclay, the great brewer, is the patron of it; who states, that it requires much less time in the ground than any other barley, being sown a month later, and reaped a month earlier. If I can succeed in time, I mean to do myself the pleasure of sending a bushel of it to you, and one to my worthy old friend Mr Dempster of Dunnichen.'

Norfolk Quarterly Report.

The unusual quantity of rain that fell during this quarter, has not only sodded the land, but has been very unfavourable to the grazier, particularly for sheep; their food being always dirty, and their coats full of water. The fen farmers have suffered severely from breaches of banks; many thousands of acres of land are from six to seven feet under water, and the loss of stock and corn is immense. This disaster has given a rise to the price of grain. It is said the water cannot be got off these valuable lands in less than twelve months. For these last ten days, we have been favoured with fine dry weather, during which time the stock (sheep and bullocks) have done well; and the land is become dry enough for ploughing. Planting peas commenced a week back on dry soils, and is now become pretty general. The turnip crop suffered severely from the alternate frosts and rain; they became very rotten; but fortunately the farmer was well stored with good hay, which proved this year (as well as many preceding years) of essential service. The

growing

growing crops of wheat (from being over-wetted) looked very sickly about three weeks back: at this time they are much revived. There appears to be a full plant on the ground; and, as far as can be judged, they promise well. The last year's crop seems (from the general use of thrashing-machines) to have by much the greater part been brought to market. Grain of every description advances in price. Wheat sells from 90s. to 105s. per quarter; barley, fine, 46s.; inferior as low as 32s.; white peas for seed 8*l.*; grey do. 60s. per quarter; beans 60s.; oats from 32s. to 42s. per quarter. Butcher meat is also risen in price. Beef from 8s. 9d. to 9s. 2d. per stone of 14 lib.; mutton from 7½d. to 8d. per lib.; veal 7d. to 8d.; pork 8d. to 8½d.——*February 28th.*

Letter from London, 1st March.

'The boisterous and unsettled state of the weather during the months of December and January, prevented the supplies of grain coming to this market so regularly as usual; but they have, upon the whole, not been far deficient in point of quantity, though, in quality and condition, they prove to have been correctly represented in last report. Hardly any foreign grain has arrived, and but little from Scotland or Ireland. The home counties of Essex, Kent, and Suffolk, have furnished the great proportion of wheat, (and with the aid of Norfolk), also of barley, beans, and peas. Lincoln and Yorkshire have, as usual, supplied the oats; and Northumberland lately contributed a part.

'Wheat has fluctuated in price more than any other description of corn; but, since the accounts of the probable continuance of the American embargo, the article has been gradually creeping up. The proportion of malting barley come to hand, has been very small, compared with the quantity of stained and damaged quality, which has considerably curtailed the operations of the maltster, and established an unusual difference of price in the shipments from the same port, extending, in many instances, to 10s., 12s., and even 15s. per quarter. The oats, too, vary exceedingly; the great bulk of them being light, and little better than chaff. We receive, in the same ship, oats that weigh from 38 to 40 lib. per bushel, and some not more than 25 to 28 and 30 per bushel.

'Beans, Peas, and Rye, are by far the most perfect grains of the last harvest, and are indeed all good of their kinds. The young wheats never got very forward in this circle; and, notwithstanding the trying season they have passed through, few complaints are heard, although, in many parts, the waters lodged long upon them. In the fens of Cambridge, Norfolk, and Lincoln, however, great and irreparable injury is said to be sustained from the floods, where, probably, nearly 100,000 acres of land are rendered incapable of cultivation this season.

'The proposed bill for the adoption of corn distillation in Ireland, has, at last, been thrown out by the House of Commons; and regulations are framing for the use of sugar in that country, as in

England

England and Scotland. This measure seems to meet the approbation of almost all classes of people.

State of London Markets, 1st of March.

Wheat, English, White	95s. 96s. 99s.
——— Do. Red	90s. 92s. 96s.
——— North Country	88s. 92s. 95s.
——— Dantzic and Koningsberg	90s. 92s. 96s.
Barley, Norfolk and Suffolk	44s. 48s. 50s.
——— North Country, &c.	36s. 40s.
Malt, Norfolk and Suffolk	80s. 82s. 84s.
Rapeseed (new), per last of 10 quarters	58*l.* 60*l.*
Rye	68s. 70s.
Beans, Pigeon and Small	60s. 62s. 64s.
——— Ticks and Large	52s. 54s. 56s.
Peas, White Boilers	140s. 147s.
——— Hog or Grey	54s. 58s.
Oats, Potato	42s. 44s. 46s.
——— Poland	38s. 42s. 44s.
——— Feed	36s. 38s. 40s.
Flour, English, per sack	85s. 90s.
——— American, per barrel of 196 lib.	56s. 58s.
Tares (spring), per bushel	20s. 21s.

NOTICES TO CORRESPONDENTS.

The remainder of the '*Remarks on Mr Laurie's Letter on the Depopulation of the Highlands,*' is reserved for next Number.

Our good friend P—n's Reply to the Strictures of 'A Constant Reader,' on his Account of Perthshire Husbandry, shall not be neglected. We apprehend that 'A Constant Reader' has at last met with his match.

The 'Storemaster's Wellwisher's' Observations on the Account of the Improvements introduced on the Estates of the Duke of Buccleugh, are under consideration.

Some further information concerning the Reaping Machine, has lately been communicated, which, if possible, will be presented in next Number; also some ingenious Observations on a new Mode of yoking Horses in Thrashing Machines.

Grateful thanks are returned to our Correspondents, for the liberal assistance given to this Work; and their future aid is respectfully solicited.

No. XXXVIII. will be published on Monday, 12th June.

D. WILLISON, PRINTER, EDINBURGH.

HIGHLAND SOCIETY HALL.

Edinburgh, February 10.

THE HIGHLAND SOCIETY of SCOTLAND do hereby advertise, that they are to give the undermentioned PREMIUMS in the year 1809:—

ESSAYS.

I. A PIECE of Plate, of *Thirty Guineas* value, will be given for the best and approved Essay, giving a distinct account of the *Present State* of the District of Country comprehended within the following boundary; viz. from Livingstone, by the east side of the parish of West Calder, to Carnwath; and from Carnwath, by Lanark, to Dalzel, and from thence in a straight line to the Monkland Canal, and from thence back to Livingstone, describing the various improvements of which it is susceptible, the means of effecting these, and the difficulties and obstacles which are to be surmounted, together with any local advantages derivable to that district itself, or any other adjacent to, and connected with it, from manufactures, mines, or minerals, especially coal.

II. A piece of Plate, of *Thirty Guineas* value, will be given for the best and approved Essay, giving a distinct account of the *Present State* of that part of the County of Inverness comprehended within the following boundaries; viz. the boundary of the county with Argyllshire, from the Western Ocean, until it reaches Fort-William; from thence by the proposed line of the Caledonian Canal, until it reaches Glenurchart; from thence by Strathfarar to the boundary of the county with Ross-shire; from thence, by the same boundary, until it reaches Kylerhea, together with the Isle of Skye, and the small islands connected with it; describing the various improvements, in point of rural economy, manufactures, mines, minerals, and fisheries, of which it is susceptible; the means of effecting these, and the difficulties and obstacles to be surmounted; together with a view of any local advantages possessed by that district itself, or any other adjacent to, or connected with it, tending to its improvement, so as to comprehend, on the whole, an account of the most effectual means of obtaining the utmost and most valuable produce from the land and sea.

N. B. If the information received in consequence of these Premiums proves satisfactory, the Society have it in view to offer similar Premiums for other districts of Scotland.

III. It being understood that different varieties of Wheat, Barley, and Oats, are respectively adapted for different soils and situations, a piece of Plate, of *Thirty Guineas* value, is hereby offered for the best and approved Essay on the circumstances which distinguish the varieties of these grains, chiefly deserving of culture; and on the situation, soil and climate adapted to ach, determined by accurate experiments, or by a reference to

well-authenticated facts. It would be desirable that specimens, weighing not less than one pound of each of the different varieties described, should be delivered in along with the Essays; and that the Essays should contain a particular account of such soil, together with its exposure and elevation; and should also state the places where these experiments and observations have been made.

IV. A piece of Plate, of *Fifteen Guineas* value, will be given for the best and approved Essay on the subject of the Smut in Wheat. The Essay to contain an investigation into the causes of this defect or disease in the Plant, with a Statement of the best methods to be taken for preventing or diminishing the occurrence of the Smut in wheat.

V. A piece of Plate, of *Thirty Guineas* value, will be given for the best approved Essay or Statement, pointing out in a distinct manner, the best method of Stapling Wool, and the best and most eligible plan of introducing the practice of the Stapling of Wool generally into Scotland.

VI. A piece of Plate, of *Ten Guineas* value, will be given for the best and approved Account, verified by experiment, of of the most economical method of Charring or Carbonizing Peat or Moss, and rendering it fit for the burning of lime, and for the uses for which Charcoal or Charred Wood is applied.

A Specimen of the Charred Peat, not less than two pounds weight, to be produced.

VII. A piece of Plate, of *Fifteen Guineas* value, will be given for the best and approved Essay or Communication on the best practical mode of Planting and Management of Woods, viz. the proper time of thinning Fir Plantations, and those of other timber; the proper time and mode of cutting Oak Coppice Wood, the management of its bark, and cheapest and best mode of Charring all species of Wood.

RULES OF COMPETITION.

In all these Essays, it is expected, that when facts not generally known are stated, they will be authenticated by proper references; and also that the Essays will be written in a fair and legible hand. The Society would likewise recommend, that one page of the folio may be left blank for any observations which may occur to Members of the Society on perusal.

The Essays on all the different Subjects above mentioned must be lodged with the Depute Secretary of this Society, on or before the 1st November 1809. Each Essay must be inscribed with some distinguishing motto or device.

A sealed note, containing the Author's name, and inscribed on the back with the motto or device of his Essay, must be lodged with the Essay; and when the motto or device on the Essay or sealed note is neglected by the Author, such Essay will not be allowed to compete for any Premium.

N. B. None of the sealed notes, except those which bear the distinguishing motto or device of Essays found entitled to the whole or a part of the Premium advertised, will be opened; and the Society are to be at liberty to publish the Essays, or extracts from them, for which the Premium, or any part of it, shall be adjudged. And such Essays as are not found entitled to any Premium, or part of it, will be returned to the Authors when called for. Further, upon application from the gainer of any of these Premiums, the Society, in such cases as they may see proper, will allow them to be given in money.

CULTIVATION OF OSIERS AND WILLOWS.

OSIERS.

To the person in Scotland who shall raise the greatest quantity of Osiers, not less than half an acre, and not fewer than 6000 planted on the half acre, in spring or autumn 1808, or spring 1809, and which shall be fit for making baskets in the year 1809 or 1810—A piece of plate of *Ten Guineas* value, or that sum in money.

WILLOWS.

To the person in Scotland who shall raise the greatest quantity of Willows, not fewer than 10,000 planted in spring or autumn 1805, or spring 1806, and which shall be cut for making barrel hoops in the year 1809—A piece of plate of *Twelve Guineas* value, or that sum in money.

N. B. The plantations must be sufficiently fenced from cattle, and kept free of grass and weeds; and certificates thereof, and of the planting the Osiers, and of the number and size of the Willow Hoops, must be subscribed by two Members of this Society, or by one Member, along with a Justice of the Peace, or the Minister of the parish, who shall state the causes of their knowledge of the facts set forth in the certificate.

MACHINERY.

To the person who shall be the first to erect, not more than seven miles from Edinburgh, a Thrashing Mill, upon the principle of the model to be seen at the Highland Society Hall, for the use of small farms, with any improvements that may render it more complete, without greatly increasing the expense—A piece of plate of *Ten Guineas* value, or that sum in money.

N. B. Thrashing Mills on the construction of the model are already in use in several parts of Scotland, particularly in the district of Dumblane, Perthshire, the expense of which has not exceeded 20*l.*; and the reason why the Society is desirous of having one erected in the neighbourhood of Edinburgh is, that a Committee of the Directors may examine it at work, and report upon it to the Society.

CLASS FIRST.

PREMIUMS for TURNIPS and SOWN-GRASSES, and IMPROVEMENT of BARREN LANDS, in the following Districts of ROSS-SHIRE.

DISTRICTS.

1. The Island of Lewes.

2. The parishes of Glensheal, Lochalsh, and that part of the parish of Kintail, lying in the county of Ross.

3. The parishes of Lochcarron, Applecross, Gairloch, and Lochbroom.

4. The countries of Strathconnon, Strathbran, and Strathgarve, and the other Highland Districts of the parishes of Urray, Fodderty, and Contin.

To the tenant in each of the 1st, 2d, and 3d districts, who shall have the greatest extent (not less than two Scots acres) of his arable land under a Turnip Crop, three times hoed in the year 1809—*Six Guineas.*

To the tenant in each of the said districts who shall have the next greatest extent as aforesaid (not less than one Scots acre)—*Four Guineas.*

To the tenant in each of the said 1st, 2d, and 3d districts, who shall have the greatest extent (not less than three Scots acres) of his arable land properly sown down, after any green crop or fallow with a crop of Red Clover and Rye grass, the crop to be carefully protected from cattle, sheep, &c. and cut in the year 1809—*Seven Guineas.*

To the tenant in each of the said districts who shall have the next greatest extent (not less than two Scots acres) managed as aforesaid—*Five Guineas.*

To the tenant in the fourth district who shall, before the 1st day of November 1809, bring into arable culture the greatest extent of land, (not hitherto improved or in cultivation, and not less than one Scots acre)—*Seven Guineas.*

For the next greatest portion as aforesaid—*Five Guineas.*

For the third greatest portion—*Three Guineas.*

N. B. Certificates as to the Premiums in the above-mentioned districts must be subscribed by two Members of the Society, or by one Member along with a Justice of the Peace, or the Minister of the parish; and, as to the Turnip and Sown-Grasses, must specify the particulars in the respective articles above set down, with any other circumstances relative to the mode of cultivation which may appear material, and must be transmitted to the Depute Secretary of this Society, on or before 10th December 1809.

Certificates of Improvements of Barren Land must specify the extent of the ground improved, with its situation and quality

before, and condition after the improvement; also the mode of improvement, with the period of its commencement, and the quantity and quality of the crop produced. To be transmitted to the Depute Secretary, on or before the 10th December 1809.

It is proposed to continue the above Premiums in the before specified districts of Ross-shire, for the year 1810, subject to such alterations as the Society may see proper.

CLASS SECOND.

PREMIUMS for improving the Breed of BLACK CATTLE, in the following Districts of the Counties of DUMBARTON, BUTE, and ARGYLL.

DISTRICTS.

The first district to contain that part of Dumbartonshire to the west of the river Leven.

The second district to contain the island of Arran, in the county of Bute.

The third district to contain the district of Cowal, in the county of Argyll.

The fourth to contain the district of Argyll, in the county of Argyll.

PREMIUMS.

For the best Bull, from two to seven years old, being the property, or in the possession of any person in each of the above districts, and kept on their farm or town, from the 1st day of June to the day of competition—*Ten Guineas.*

For the second best Bull, from two to seven years old, belonging to, or in the possession of any person in each of the above four districts, and kept by him on his farm or town for the foresaid period—*Five Guineas.*

For the best Quey of three years old, the property of, and bred by the competitor in each of the above districts—*Five Guineas.*

For the second best Quey, three years old, the property of, and bred by the competitor in each of the four districts above mentioned—*Three Guineas.*

The following Members of this Society (as none but actual Members, or their factors in their absence, can be named) are hereby appointed Judges for the different districts in the order above mentioned, viz.

For the first district, Sir James Colquhoun of Luss, Baronet, W. C. C. Graham Esq. of Gartmore, William Fergusson Esq. of Raith, or, in his absence, the Factor on the estate of Arrochar, James Denniston Esq. of Colgrain, Hector MacDonald Buchanan, Esq. of Ross, and John Buchanan Esq. of Ardoch; any two of them a quorum. Mr Denniston to be Convener.

For the second, Right Hon. Lord A. Hamilton, Hon. Lord Bannatyne, James Lamont Esq. of Knockdow, and John Fullerton Esq. of Kilmichael, Charles MacAlute Shannon Esq. of Levenstrath; any two of them a quorum. Mr Lamont to be Convener.

For the third, Sir Alexander Campbell of Ardkinlass, Baronet, John Lamont of Lamont Esq. Donald MacLachlan of MacLachlan Esq. John Campbell Esq. of South-hall, Duncan Campbell Esq. of Glendaruel, and John Fletcher Esq. of Dunans; any two of them a quorum. Mr Campbell of South-hall, or, in his absence, Glendaruel, to be Convener.

For the fourth, Lieut.-General Campbell of Lochnell, Neil Malcolm Esq. of Poltalloch, Colin Campbell Esq. of Kilmartin, or Major D. Campbell, younger of Kilmartin, John NacNeil Esq. younger of Oakfield, H. T. Campbell Esq. younger of Ashnish, John Campbell Esq. of Kilberry, John Campbell Esq. of Craigineure, Lieut.-Colonel Humphrey Graham, David Campbell Esq. of Comby, Neil MacGibbon Esq. of Glassvar, Robert Campbell Esq. of Sonachan, John Gregorson Esq. of Durran; any three of them to be a quorum. General Campbell, or, in his absence, Lieut.-Colonel Graham, to be Convener.

RULES OF COMPETITION.

The times and places of competition are to be fixed by the Conveners, with the advice of at least a quorum of their respective Committees; and the competitions are to take place betwixt the 1st day of August and the 1st day of November next.

The Convener of each Committee is to give timeous notice to the other Judges of the district, of the place and day of competition, and to be particularly careful that the same be intimated on the respective parish church doors of the districts, for at least two successive Sundays previous to the competition.

In order to entitle the competitors to their respective premiums, a regular report, subscribed by all the Judges who attend the competition, must be transmitted by the Conveners to the Depute Secretary of this Society, on or before the 10th December next, at furthest; and which report must bear the ages of the bulls and queys preferred, the length of time the bulls have been in possession of the competitors; and, with respect to the queys, that they were bred by the competitors, and were their property on the day of competition; the place and day of competition; the number of bulls and queys respectively produced thereat; and, in general, that all the rules of competition fixed by the Society, as above-mentioned, have been strictly observed; and, in particular, that the previous intimation to the Judges, and advertisements at the church-doors, were timely and regularly made, as before required.

CLASS THIRD.

To PLOUGHMEN for Improvement in PLOUGHING.

The under-mentioned sums will be distributed this season, in Premiums to Ploughmen, in the following Districts, viz.

1. Ten Guineas in the Monteith district, south of the river Teath, including the parishes of Kilmadoc, Callender, Port, Aberfoyl, Kippen in Perthshire, Kincardine and Balquhidder.

2. Ten Guineas in the Crieff district of Perthshire.

3. Ten Guineas in the Stormont district of Perthshire, to contain the parishes of Lethindy, Blairgowrie, and Pendocy, to the west of the river Erricht; Kinloch, Cluny, and Caputh, to the east of Stenton.

4. Ten Guineas in the Dunkeld district, including the country of Atholl and others to the north of the Tay, from the river Tumble on the west, to the lands of Stenton on the east; and, on the south, the lands called the Bishopric, Strathbraan, Murthlies, and Arntilly.

5. Ten Guineas in the Cushiville district of Perthshire, including also Strathtay, on both sides of the river, to the Tumble.

6. Ten Guineas in the county of Nairn.

7. Ten Guineas in a district of Forfarshire, to contain the parishes of Forfar, Kirrymuir, Inverarity, Dunichen, Oathlaw, Carrolstone, Fearn, and Tannadice.

The whole of the above Premiums in this Class to be competed for at such places and times, and in such manner as the Members of the Society, resident in the respective districts, shall find most proper; these Members being appointed as Committees for that purpose.

Sir John Macgregor Murray, Bart. for Monteith; Sir Patrick Murray, Bart. for Crieff; Sir Alexander Muir Mackenzie, Bart. (in his absence Colonel Macpherson of Blairgowrie) for Stormont; his Grace the Duke of Atholl (in his absence Thomas Palliser Esq. his Grace's factor) for Dunkeld; Sir Robert Menzies, Bart. (in his absence Neil Menzies Esq. younger of Menzies) for Cushiville, districts of Perthshire; Hugh Rose, Esq. of Kilravock, for Nairnshire; and John Mill Esq. of Norranside, for the above district of Forfarshire, to be Conveners, with instructions to report in writing to the Society, on or before 30th December 1809—it being understood, that any Ploughman who may have formerly got the highest Premium, shall not be allowed to compete.

The Society, in addition to the above sums of Ten Guineas, likewise give a First and Second Silver Medal to the best and second best ploughman in each of the above districts. The medals to be had of the Depute Secretary, on application from the Conveners.

N. B. As these Premiums are offered for the purpose of exciting emulation among the tenantry and servants, the Society expect that their resident Members will countenance the competitions by their attendance; and therefore require, that at least three members shall be present and subscribe the report.

The Society further, being desirous that, in those counties and districts where ploughing-matches were formerly given by the Society (viz. Ayr, Dumfries, Wigton, Dumbarton and Peeblesshire, Upper and Middle Wards of Lanarkshire, Stewartry of Kirkcudbright, districts of Dunblane, Perthshire, and Kintyre, Argyllshire), the country gentlemen should themselves continue to encourage improvement in this branch of husbandry, by instituting ploughing-matches;—the Highland Society will give a Silver Medal to the ploughman found to be the best at each of the first four competitions instituted by the resident Gentlemen in each of these last-mentioned districts in 1809; it being required that twelve ploughs at least shall start at each competition; and that at least one Member of this Society shall be present at such competitions instituted by the resident Gentlemen, and report thereon to this Society.

A Report of the Proceedings of the Agricultural Society of the Rhins of Galloway having been laid before the Directors of this Society, the same was approved of; and, in particular, the Society's practice of periodically inspecting the improvements made by the different farmers within that district; and, as a mark of such approbation, the Directors have voted the Highland Society's Silver Medal, with a suitable inscription, to be presented to Mr DAVID SHANK, Secretary of the Rhins of Galloway Agricultural Society.

By order of the Directors,

LEWIS GORDON, Dep. Sec.

D. WILLISON, Printer,
Edinburgh.